DOCUMENT RESUME

ED 071 689 LI 004 085

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TITLE	The Educational Information Consultant: Skills in Disseminating Educational Information, A Report on the Development and Operational Validation of Three Alternative Forms of a Transportable Instructional System. Final Report.
INSTITUTION	Far West Lab. for Educational Research and Development, Berkeley, Calif.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C. Task Force on Dissemination.
BUREAU NO	BR-6-2931
PUB DATE	31 Dec 72
CONTRACT	OEC-0-71-3950(519)
NOTE	117p.;(8 References)
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	Consultants; *Educational Programs; Educational Research; Field Studies; *Information Dissemination; *Information Scientists; *Instructional Systems; Program Development; Training
IDENTIFIERS	*Educational Information Consultant; EIC

ABSTRACT

The development and field testing of an instructional product for the training of educational personnel in dissemination and utilization of research and development information is reported. A new role, that of the Educational Information consultant (EIC), is described. A modular training program, built around the five major processes delineated for that role, is detailed. The development and field testing of three alternative delivery forms of the training, a course form, an institute form, and a learning team form are recounted. Field testing indicated the training program to be effective in imparting basic skills, knowledge, and attitudes to function in the EIC role. The course and institute forms of the training were found to be fully operational, self-contained, transportable training packages. Additional developmental work to bring the learning team form to operational readiness is suggested. (Author)

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The development and field testing of an instructional product for the training of educational personnel in dissemination and utilization of research and development information is reported. A new role, that of the Educational Information Consultant, is described. A modular training program, built around the five major processes delineated for that role, is detailed. The development and field testing of three alternative delivery forms of the training, a course form, an institute form, and a learning team form are recounted. Field testing indicated the training program to be effective in imparting basic skills, knowledge, and attitudes to function in the EIC role. The course and institute forms of the training were found to be fully operational, self-contained, transportable training packages. Additional developmental work to bring the learning team form to operational readiness is suggested.

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ED 071689

Final Report

Contract No. OEC-0-71-3950 (519)

THE EDUCATIONAL INFORMATION CONSULTANT: SKILLS IN DISSEMINATING EDUCATIONAL INFORMATION, A REPORT ON THE DEVELOPMENT AND OPERATIONAL VALIDATION OF THREE ALTERNATIVE FORMS OF A TRANSPORTABLE INSTRUCTIONAL SYSTEM.

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December 31, 1972

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

National Institute of Education

Task Force on Dissemination

LI 004 085

ACKNOWLEDGEMENTS

The instructional system described in this report, and the report itself, were produced by the teamwork of many individuals. Their professional assistance is gratefully acknowledged.

Special credit for their part in producing various elements of the training is due to:

Helen Webber, for her skillful work in creating the slide presentation, "The Emerging Role of the Educational Information Consultant."
John Sunier, for recording the audio portion of that presentation.
Sandra Tembeck, for the prodigious energy and care she put into producing a number of components of the training materials including the "Ecology Information Package," the index to the Guide to Educational Resources, the graphics, and for the hours of proofreading.
Ann Macahilig, for typing the many, many drafts and the final copy of the training materials.

A number of persons deserve special thanks for giving generously of their time in planning, conducting, and giving feedback on the field tests:

Dr. Diana Ashworth, State Department of Education, Columbia, South Carolina.
Dr. Charles Bartl, University of Nevada.
Mrs. Patricia Berntsen, University of North Dakota.
Mr. Larry Brown, New England Resource Center for Occupational Education.
Mrs. Tamara Cansler, State Department of Education, Rock Hill, S.C.
Dr. David Crandall, Network of Innovative Schools, Merrimac, Mass.
Dr. Michael DeBloois, Utah State University (formerly at Florida State U.).
Mr. Alfonso Evans, State Department of Education, Charleston, S.C.
Ms. Janet Eyler, Indiana University.
Dr. Jack Fraenkel, California State University at San Francisco.
Dr. Feruchio Freschet, New England Resource Center for Occupational Education.
Mr. Sabin Gray, Tulare County Educational Resources Center (Calif.)
Dr. Richard Lavin, Merrimack Education Center, Chelmsworth, Mass.
Dr. Harvey Littrell, Kansas State University.
Dr. James Nord, Michigan State University.
Dr. William Ritz, Syracuse University.
Mr. David Roy, New England Resource Center for Occupational Education.
Mr. Robert Trombley, New England Resource Center for Occupational Education.

We also wish to thank Freeman Elzey for his efficient organization and analysis of the volumes of data collected for the final report (and for his indefatigable good humor throughout that task as well), and Vickie Arzadon for her patient work in typing the final report.

In particular, we wish to thank Dr. Paul D. Hood, Associate Laboratory Director for the Educational Systems Division of the Far West Laboratory, for his thorough review and critiquing of the product and report, and for his sustained support and guidance.

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THE EDUCATIONAL INFORMATION CONSULTANT: SKILLS IN DISSEMINATING EDUCATIONAL INFORMATION, A REPORT ON THE DEVELOPMENT AND OPERATIONAL VALIDATION OF THREE ALTERNATIVE FORMS OF A TRANSPORTABLE INSTRUCTIONAL SYSTEM.

SUMMARY

To facilitate the flow of timely and accessible information from educational research and development agencies into the schools for practical applications, a network of federal, state, regional, county and local education information centers is developing and rapidly expanding. The potential effect of these communications systems in stimulating better and speedier utilization of research and current knowledge about educational innovations should be significant.

In support of this dissemination effort, personnel with new skills are required. Numerous research studies have shown that effective transfer of knowledge from researchers and developers to practitioners depends upon a human linking agent. This linking agent, an active intermediary between the two groups, needs many skills in gathering, processing, and distributing information to the user.

Responding to the overall need for trained personnel to serve in the emerging information networks, the Far West Laboratory for Educational Research and Development developed, field tested, and validated a self-contained, transportable instructional system for training persons to work in a new role in this evolving system, that of the Educational Information Consultant (EIC).

The EIC Instructional System

The primary objective of this instructional system is to develop the skills, knowledge, and attitudes required to function in the EIC role. Specifically, the training is based on a model which covers five major processes delineated for the role:

Negotiation:	Identification, definition, and analysis of the problem and attendant information need(s) of a client.
Retrieval:	Development of a search strategy to locate, identify, and secure R & D information pertinent to the client's problem and request.
Transformation:	Screening, analysis, synthesis and organization of the results of the search into a form appropriate for delivery to the client.
Communication:	Display and communication of the results of the search to the client in a style appropriate for his use in finding a solution(s) to the problem.
Evaluation:	Assessing the performance of the major EIC processes, overall role, and the operational effectiveness of the setting within the linkage system; reformulation based on evaluation and adjustments made in processes and functions.

Knowledge, skills, and affective behaviors in each process are demonstrated in a sequential, modular configuration. The approach is to provide the trainee with a meaningful orientation to the whole EIC role, and with an opportunity to master tasks during training in the order in which they are performed on the job. Instructional activities in each module have three phases: (1) preparation, (2) learning, and (3) application. The training is arranged to involve the learner actively and intensively in performing skill- and knowledge-related tasks and to involve the teacher

in facilitating that learning. The student-centered learning exercises feature group and individual activities, including role-playing, problem-solving, simulation, and decision-making exercises.

Chronology of the Developmental Project

The first year of development was completed under contract with the National Center for Educational Research and Development. During that time, a 30-hour, one-quarter course was designed, developed and field tested. Preliminary and main field tests were conducted with a total of 37 trainees during the Spring of 1971. These field tests showed the training program to be effective as a mechanism for training personnel in the various processes of the information dissemination/linkage role. Other formative evaluation, however, indicated that further developmental effort was required to revise and expand some components of the course and to make the training package transportable.

The evaluation of the product at this stage of development was reported in the Far West Laboratory publication: B. Banathy, et al. Design, development, and validation of a transportable instructional system for the training of educational diffusion evaluation personnel. Final Report. Berkeley, California: Far West Laboratory for Educational Research and Development, July, 1971. U.S. Office of Education Contract OEC-0-70-4778. (ED 055 610)

The National Center for Educational Communication funded the project for a second year of development. Subsequently, three alternative delivery forms of the instructional system were developed. These versions incorporated revisions indicated by the previous testing, and were designed to be complete, self-contained packages, ready for use without the Laboratory's supervision.

Alternative Forms of the EIC Instructional System

The training as presently constructed consists of seven instructional modules. These range in length from 4.5 to 9 instructional hours. There is also an introduction module, describing the emerging role and functional contexts of the EIC, and a simulation module, providing an orientation to the skills involved in each process. To accommodate a variety of audiences in various environments, the training was developed in three different forms, course form, institute form, and learning team form. The three forms are all based on the same model of the EIC role and are derived from the same instructional content. The forms differ primarily in their scheduling, formats, and procedures.

The course form is designed to fit the fifteen-session pattern of a college or university semester schedule. The actual instructional time totals approximately 45 hours. The institute form requires only ten six-hour days to complete and is suitable for summer school courses and on-the-job training. The learning team form is designed to be self-administered by a group of at least three trainees and monitored through correspondence with an instructional manager at a central educational facility. The schedule for this form calls for ten team sessions (a team consists of three to six members) and approximately 30 hours of individual activities. Average time to complete the learning team form is approximately ten weeks.

Evaluation of the Three Forms

The developers adopted the standard that for the instructional system to be declared effective, 90% or more of the trainees would complete the training, producing an information package usable by a client for

application to a real-life information problem. When assessed for quality, 90% of the trainee-produced information packages would be rated at a level of 2.0 (Basic Skill) or above, on a 4.0 scale. Additionally, 50% of the packages would be rated at the level of 3.0 (Proficient) or 4.0 (High Proficiency).

Operational field tests of the course and institute forms of the training, and a preliminary main field test of the learning team form, were conducted during the period of January, 1972, to August, 1972. The course form was tested at four sites with a total of 67 trainees. The institute form was tested at eight sites, with 51 trainees divided among 13 teams.

Ratings of the trainee-produced information packages revealed that of both the course and institute participants, 97% did complete the training and achieve the Basic Skill level of competence. Moreover, 74% of the course participants and 65% of the institute participants completed information packages that were scored at a "Proficient" or "High Proficiency" skill level.

The trainees' reaction to participation in the training was highly favorable. For example, 86% of the course and institute participants described the training as "very valuable." Trainees further reported that the value of the EIC training compared very favorably with that received in other courses and recommended highly that others take the training.

Since performance standards set for knowledge and skill objectives were met at seven of the eight operational field test sites and high affective ratings were given the training by both trainees and instructional managers, the training can be said to be effective.

These field tests also indicated, for the course and institute forms, that the materials are sufficient to enable instructional managers with varying backgrounds and experience to effectively administer the training

and achieve the standards. Thus, these forms of the training package may be said to be fully operational and transportable.

A generally low completion rate for the learning team form revealed that this form cannot yet be said to be operational. Some factors possibly responsible for the failure of this form to meet performance standards were identified, but not investigated in this report.

Conditions for Adoption of the Instructional System

It was ascertained that the instructional package could be installed with a minimum of system disruption and for low cost. Instructor support materials were found to be sufficiently comprehensive so that no extraordinary training was needed for a qualified instructional manager to successfully conduct the training.

Appropriate target audiences for this training include: information services specialists, curriculum development or subject matter consultants, instructional materials center personnel, principals and teachers, research analysts, librarians, and information retrieval specialists.

Recommendations

In view of the evidence that the product surpassed high quality control standards, and that considerable interest in the training package was evidenced from information network personnel and university instructors in schools of education and library science throughout the country, the development staff recommended the production and distribution of the course and institute forms of this product. (These two forms are combined into one package in the dissemination version.) However, additional developmental work is required to produce a dissemination version of the learning team form.

Instructional Materials

The complete instructional package contains the following components:

Training Manual: a workbook containing the readings, exercises, sample forms, and other job aids developed for use by trainees. This is a consumable item, normally to be purchased by each participant.

Guide to Instructional Management: a looseleaf notebook containing schedules, training plan, instructional goals, background readings, detailed directions for handling each learning element, and evaluation quideline material for the instructional manager. This Guide is needed only for the Course/Institute form.

Ecology Information Packet: a model information packet developed for use during simulation exercises in the transformation and communication processes. One packet is needed for every four or five trainees.

"The Emerging Role of the EIC": a slide-tape presentation developed to present an overview of the role in the introductory session. (This will be available as a filmstrip and tape for the dissemination version.)

"Introduction to ERIC" and "ERIC DIALOG": a slide-tape presentation on the ERIC system and DIALOG used in the Retrieval Module. (This too will be available as a filmstrip and tape for the dissemination version.)

"Negotiation and Communication Interviews": an audiotape used for simulation exercises in the Simulation and Negotiation Modules.

"T-Puzzle Exercise": a communication game used in the Introduction Module.

When the Course/Institute form of the EIC instructional package is administered as prescribed in the Guide to Instructional Management, the user may expect that 90% or more of the participants will complete the training and demonstrate at least a basic skill level of competence in performing the EIC role. More than half will attain higher levels of proficiency.

I. BACKGROUND AND OBJECTIVES OF PROJECT

A. Background to the Project

1. Need for Training

The need to utilize effectively the results of the information explosion is an urgent priority for all educators. The new roles which are being developed to aid in this process can serve potentially as vital stimuli for renewal in education.

An overview of the evolving educational information network offers some insight into the nature of institutions emerging to support this information flow and the attendant needs for personnel. As of Fall 1972, the National Center for Educational Communication had awarded funds to initiate some 14 service-oriented information dissemination systems at the state and regional level. These education information networks will form the basis for a projected Education Extension System. Field agents, retrieval specialists, and other supporting resource personnel are needed to staff these "extension headquarters"--ultimately planned for each state capital.

The number of special-interest, state, and locally funded information systems, such as those in career education, special education, and so forth, are uncounted. The trend toward continued formation of these networks is, however, clearly an "idea whose time has come."

Few accurate projections of the exact number of personnel needed have been advanced. However, all these new systems, whatever the variation is service, product, or delivery mode, require more trained personnel

than are currently available. The need for efficient, inexpensive, accessible training for such personnel has already become evident. Our investigation shows that few, if any, such competence-based training programs currently exist.

2. Chronology of the Training System Development

Development of the Educational Information Consultant (EIC) instructional system began in 1970 with a one-year grant from the U.S. Office of Education's Research Training Branch to the Far West Laboratory for Educational Research and Development (FWL). The FWL staff was awarded the funds to design, develop, and validate, through the main field test stage, a transportable, competence-based program for training personnel to perform a middleman role in education. This role is one of linking the educational practitioner with the output of educational research and development (R & D) through dissemination of information about R & D.

The conceptual basis for the training program, a description of its form, scope, and content, and a delineation of the field test procedures and evaluation results are briefly summarized in the following sections of this chronology.[1] Chapters II-V of this report document a second year of effort invested in completion of development and testing of the EIC instructional system which has been supported by the U.S. Office of Education's National Center for Educational Communication.

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[1] For a more detailed account of the first-year program, see B. Banathy, et al. Design, development and validation of a transportable instructional system for the training of educational diffusion/evaluation personnel. Final Report. Berkeley, Calif.: Far West Laboratory for Educational Research and Development, July, 1971. U.S. Office of Education Contract OEC-0-70-4778. (ED 055 610).

Conceptual basis. The design of the conceptual model for the first-year training program was based on a review of the literature on educational change and knowledge utilization and on an analysis of extant models for dissemination/diffusion, as well as consultant evaluation of alternative models.

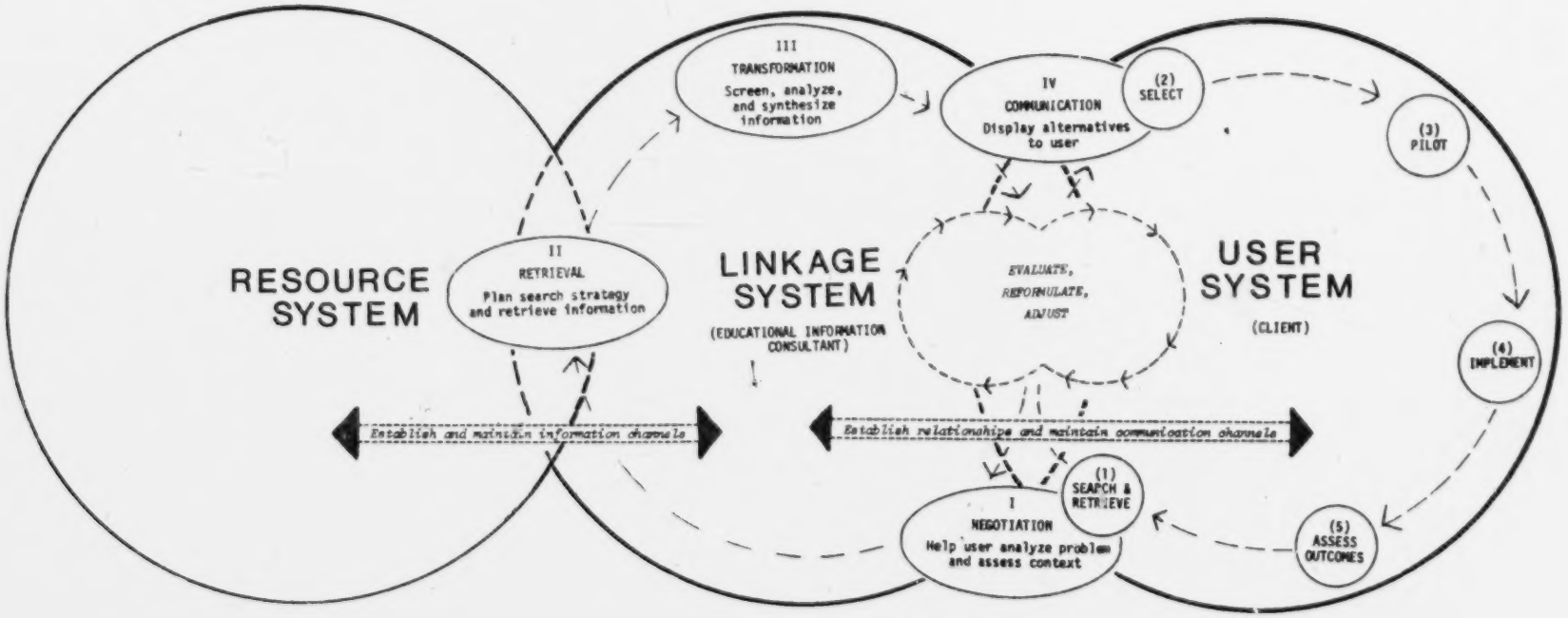
Havelock (1967, 1969) contended that in order to speed the process of diffusion of innovations, a "linker," charged with the responsibility of bridging the gap between research and practice, must be instituted. Havelock, Guba (1965), and Farr (1969) independently rejected the notion that schools have the ability to assemble and use information directly from research. According to these investigators, the role of the "linker" is one of " . . . gathering, processing, and distribution of educational knowledge."

The model displayed in Figure 1 ("A Process Model of the Educational Information Consultant Role") expressed this role concept and provided the conceptual basis for development of the EIC training program. The focal point of the model is the Linkage System, a network of local, district, county, regional, and/or state educational information dissemination services. The Linkage System interfaces with educational R & D resources (Resource System) and with school personnel responsible for educational practice (User System). The Educational Information Consultant or EIC is an agent, operating within the Linkage System, who interacts with both Resource and User Systems and establishes the connection between them.

In this model, the flow of information is initiated by the User System. The Linkage System, and therefore the EIC, is depicted as

FIGURE 1

A PROCESS MODEL OF THE
EDUCATIONAL INFORMATION CONSULTANT ROLE



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responsive to the User System. In other words, the sequence of linkage processes is activated when a client seeks information to solve a problem.[2] The EIC responds by interacting with the client at that point. Whether functioning at a local, district, county, regional, or state level, the EIC helps the client to analyze, assess, and define specifically the problem and corresponding information need. This process is labelled "Negotiation." (See Figure 1, Step 1, in the Linkage System.)

The next step in the linkage, "Retrieval," is a process through which the EIC interacts with the Resource System. After planning a strategy for locating information relevant to the client's problem, the EIC searches selected sources. Once pertinent information is retrieved from these sources the FIC then moves into Step III, "Transformation." This process is internal to the Linkage System. It requires that the EIC screen, organize, analyze, and/or synthesize the information retrieved until it is in a form which is "actionable." "Actionable" means that the information is compiled in a format and style appropriate for delivery to the client so that the client can then use the information, with minimum effort, to solve his problem. At Step IV, "Communication," the EIC again interfaces with the User System. The EIC presents to the client the package of transformed information of the problem. Whether verbal or written, communication is the process which makes clear to the client the results of the EIC's search. Communication completes the linkage of Resource and User Systems.

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[2]There is a complementary model in which the EIC performs an active, advocate, initiator, or change agent role. Successful performance in this active role requires a markedly larger repertoire of skills than required in the "responsive" role, but includes all of the responsive skills provided in the current EIC training.

"Evaluation," "Reformulation," and "Adjustment" are presented in the model as ongoing processes. Evaluation is conducted to determine effectiveness on three dimensions: (1) the individual EIC's performance of the four linkage processes; (2) the individual EIC's performance of the total role, which is a combination of the processes; and (3) the relationship between the EIC and the Linkage System in which the EIC functions. The results of such evaluation indicates whether the Linkage System is successful in servicing the User System, in utilizing the Resource System, and in fulfilling the linkage functions. Reformulation and Adjustment are processes through which changes suggested by the findings of Evaluation are introduced.

Form, content, and materials. The training program developed from this model took the form of a thirty-hour course entitled, "The Educational Information Consultant: Skills in Disseminating Educational Information."[3] The course was organized in a sequence of six modules which ranged in length from three to six instructional hours.

The first module in the sequence served as an introduction to the emerging role and functional contexts of the EIC. Each of the next five modules was built, for its theme, on one of the five major processes of the EIC role. The negotiation module focused on the identification, analysis, and specific definition of the problem and attendant information needs of a client. The retrieval module dealt with the development of a search strategy and with the location, identification, and acquisition of R & D information pertinent to the client's problem and request. The

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[3]This thirty-hour course was modified during the second-year project. See Chapter II, Section A, pp. 15-19.

module on transformation focused on the screening, analysis and/or synthesis, and organization of the search results into an approrpiate delivery form for the client. The communication module focused on the conveyance and display of the transformed information to the client in a style appropriate for the client's use in solving the problem. The evaluation module was devoted to the topics of: assessment of the EIC process and role performance and of the operational effectiveness of the linkage setting; reformulation based on evaluation and feedback; and making adjustments in processes, role, and setting. A concluding segment was reserved for trainee testing and evaluation.

Instructional activities in these modules primarily required direct student participation. Technical information, guidelines, and theoretical instruction were presented only as appropriate. In each module, the activities and instruction observed three phases: preparation, learning, and application. The preparation phase introduced trainees to the major process of the module and to a diagnostic exercise which probed their ability to perform skills associated with the process. The learning phase involved an intensive training experience consisting of content presentation, written and oral exercises, and/or interactive activities. Each module concluded with the application phase, during which trainees were exposed to a real problem to test their knowledge of and/or capability to perform the major process. Throughout these three phases, trainees participated in large-group, small-group, and individual activities, which included role playing, problem solving, simulations, and decision-making exercises. Some formal presentations by the instructional manager, averaging approximately 20 minutes per session were interspersed.

The course developed this first year fit the ten-session pattern of a quarter-term schedule. The 30 hours of modular instructional time were therefore sub-divided into 10 three-hour sessions to suit daily or weekly class meetings. However, the course was expandable to permit compatibility with the longer fifteen-session pattern of the semester schedule. The table below summarizes the percentage of instructional time, number of instructional hours, and session numbers allotted to each module.

Module	Percentage of Total Instructional Time	Number of Hours	Session Numbers
1. Introduction	10 %	3	1
2. Negotiation	20 %	6	2, 3
3. Retrieval	20 %	6	4, 5
4. Transformation	20 %	6	6, 7
5. Communication	15 %	4.5	8, 9
6. Evaluation	10 %	3	9, 10
Concluding segment for trainee testing and evaluation	5	1.5	10
	100 %	30. 0	

Materials for the course included a notebook for trainees, an instructor's notebook, and audiovisual materials. The looseleaf trainee notebook contained job aids, readings, exercises, guidelines, and other accessories, which were grouped into ten sections corresponding to the ten sessions of the course. The instructor's notebook included all of these materials, plus a schedule and detailed notes on the format and content for each session. The audiovisual materials included a communication game, a filmstrip with tape on ALERT, a curriculum

information system developed by the Far West Laboratory, an audiotape on negotiation, and a slide-tape on the ERIC and DIALOG systems, as well as two optional films.

Field testing and evaluation procedures. A plan for field testing and evaluation of the course was devised in accordance with the product development strategy of the Far West Laboratory.[4]

A preliminary field test (PFT) of the course at the University of California, Berkeley, a preliminary main field test (PMFT) at San Francisco State College, and a definitive main field test (MFT) at the University of California were conducted. A total of approximately 40 persons participated in these tests. They represented experience in a variety of positions and occupations such as school librarian, information analyst, teacher, and graduate student.

During the field tests data on cognitive and affective outcomes occurring from exposure to the training were collected. In addition,

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[4]The strategy begins with the development of a training plan and prototype materials. A preliminary field test is then conducted with a small, but representative, sample of the target audience. Following this test, a main form of the product is then developed. This form incorporates any revisions and changes needed to insure effectiveness of the product. The product then undergoes a main field test with a larger sample of the target audience. If necessary, this test may be conducted in two stages: (1) a preliminary main field test, during which revised and refined evaluation procedures, formats, and instruments are checked and (2) a definitive main field test, during which the product and revised evaluation instruments are tried under Laboratory supervision. This strategy proceeds further to provide for development of an operational field test (OFT) form, which incorporates revisions and changes indicated by the previous testing and which is designed as a complete, self-contained package. An OFT is then conducted with a large sample of the target audience to determine whether the product is ready to be used without Laboratory supervision. Development and evaluation of this OFT form were undertaken during the second-year project.

transactional records of each field test were kept both to document the extent to which the course was being implemented as planned and to collect evidence on the nature of interactions between students and instructor and students and students.

Evaluation results and conclusions. Evaluation of cognitive and affective outcomes from the course field tests defined progress toward achievement of objectives and toward refinement of the product. On a combination objective/subjective test administered before and after the course at the three test sites, statistically significant ($p < .05$) pre/post changes, indicating improvement in the cognitive domain, occurred. These results indicated that trainees had acquired the knowledge and process skills required to perform effectively the role of the EIC.

Data obtained from attitudinal questionnaires administered to PFT, PMFT, and MFT participants revealed that trainees valued the course and their experiences during training, and that they apparently considered the skills learned in the course as potentially useful on the job. Over 90% of the trainees would recommend the course to others. More than 75% valued the training received in the course higher than other training received in college and university courses.

The preceeding evaluations indicated that the major objective of the development project had been achieved. The highly interactive, student-oriented training program was shown to be viable as a mechanism for training personnel in the various processes of the information dissemination/linkage role. Other formative evaluation indicated that further developmental effort was required to make the training package

transportable and that revisions or further elaboration of some components of the course were required. In addition, recommendations to expand the duration of the course from 10 to 15 sessions, to add a more effective introduction on the EIC role, and to improve instructor support materials appeared warranted.

B. Rationale for Proposal to Develop Alternative Delivery Forms

Since the first-year project supported development of the training program only through its main testing stage, the logical sequel was to complete the formative development indicated by the evaluation results and to then test the transportability of this finalized training product. A major thrust of the proposal submitted to and funded by the U.S. Office of Education's National Center for Educational Communication (NCEC) in the spring of 1971 was therefore to provide for the final revision, expansion, and operational field testing of the course as a self-contained, transportable package of student and instructor materials.

The proposed 45-hour course form responded primarily to existing institutional arrangements for pursuit of graduate-level training by educational personnel. It appeared suitable either for students enrolled in preservice education or for personnel in training on an inservice basis. It also accommodated administrative and instructional patterns associated with the regular college/university graduate programs and with the extension programs.

Logical analysis of variations in selected learning environments, characteristics and needs of the target audiences, and administrative and

instructional management requirements indicated that other alternative delivery forms of the training might be needed to produce an effective and complete instructional system. In terms of the learning environment, there existed a need for concentrated, as opposed to spaced, learning opportunities in which personnel could be assembled simultaneously for intensive training of relatively short duration. There also appeared to be an emerging need for opportunities to train personnel within their own locale and operational setting, without institutional and time constraints. This kind of "out-reach" training appeared to resolve demands for training with more immediacy and relevance.

Correspondingly, variations in the needs and demands of potential target audiences for training were apparent. Some persons, for various reasons, would be unable to enroll in a regular graduate or extension program, but could personally or professionally arrange to participate in a training program which is more limited in time. Other persons would need or prefer to train within the context of their own environment.

Finally, specific organizational, scheduling, and instructional parameters imposed on training by a sponsoring academic institution would vary considerably and thus require flexibility in an instructional system.

Accordingly, the second major thrust of the proposal to NCEC was to design, develop, and test alternative delivery forms of the training. These forms would be suitable for applications in various environments and in varied instructional contexts for the training of linkage personnel to serve in federal, state, and local educational agencies, information centers, and private and public educational development agencies.

C. Objectives

The overall goal of the proposed second-year project was to produce a self-contained, transportable instructional system that would include instructional materials and guides to instructional management for personnel assuming roles in educational information dissemination. The proposed system would provide for a total of approximately 60 hours of both training and independent study. It would have three alternative delivery forms: course, institute, and learning team. Each form would be designed as a self-contained, transportable package of student and instructor materials. The 45-hour course form would be suitable primarily for use in a semester college/university program. The ten-day institute form would be appropriate for short, intensive programs, such as summer school or on-the-job training courses. The learning team form would be self-administered by a group of at least three trainees and monitored through correspondence with an instructional manager at a central educational facility.

The primary objectives of the project were thus to:

1. Design, develop, and test the alternative delivery forms;
2. Develop and test guides for instructional management of the various forms; and
3. Provide training for approximately 150 personnel representing the target population (a side-effect of accomplishing objectives 1 and 2).

In addition, supplementary objectives of the project were to:

1. Prepare plans for additional training in dissemination of educational information, and
2. Prepare a comprehensive final account on the accomplishment of the primary objectives of the project.

II. DESCRIPTION OF ALTERNATIVE DELIVERY FORMS

Development of the three alternative delivery forms of the EIC instructional system began July 1, 1971, with a 14-month grant from the U.S. Office of Education's National Center for Educational Communication. Funds were awarded to develop and validate, through to an operational field test stage, self-contained, transportable packages of student and instructor materials for course, institute, and learning team forms of the training.

The three forms subsequently developed are all based on the same model and use much of the content of the training course produced during the preceding period. Thus, all three forms of the training emphasize student-centered activities and observe an instructional approach which is learning-task-centered and job-context-sequenced.[5]

All three forms have a similar modular sequence built around the major processes of the EIC role. Each has an introductory segment on the functional context and role of the EIC, followed by a simulation module to orient trainees to the major processes of the role. All forms then present five process-specific modules.

The forms differ primarily in their scheduling, formats, and procedures, as described in the following sections.

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[5]The learning-task-centered mode (Banathy, 1968) means that the learner's environment is arranged to involve the learner actively and intensively in performing skill- and knowledge-related tasks and to involve the teacher in facilitating that learning. Job-context-sequencing (Smith, 1968) means that the learner is provided with a meaningful orientation to the whole job, the order in which the tasks relevant to the job are performed, and an opportunity to master them.

A. Course Form

The course form was first substantially revised and expanded, based on the evaluation of the field test data collected during the previous project year.

Schedule. The course, extended in length from 30 to 45 hours, is now designed to fit a semester schedule. Total in-class time is 39 instructional hours, with individual modules ranging in length from three to eight hours. (An instructional hour is equal to 50 minutes.) The total in-class time is divided into 13 three-hour sessions suitable for weekly class meetings. Six additional hours, or two sessions, are reserved for registration, holidays, or other unforeseen scheduling or instructional requirements of the sponsoring institution. The time required to complete out-of-class learning activities varies from session to session.

Format and content. The number of modules in the course was increased to seven with the addition of a simulation module. The course is now sequenced as follows: Module 1, Introduction; Module 2, Simulation of the EIC Role; Module 3, Negotiation; Module 4, Retrieval; Module 5, Transformation; Module 6, Communication; and Module 7, Evaluation. Each module consists of a set of related, but self-contained, training "elements." Each element focuses on a specific instructional activity or exercise which helps to develop skill in or understanding of the major topic of the module.

Module 1 introduces the EIC role within the context of the emerging educational information dissemination network.

Module 2 consists of a simulation of the EIC role. It is an interactive instructional sequence based on pre-structured individual, group, and

observational activities which illustrate the major EIC processes of negotiation, retrieval, transformation, communication, and evaluation. The experience is designed to involve the trainees either directly or indirectly in a complete "walk-through" of the steps involved in receiving, processing, fulfilling, and evaluating a client's request for information on a given problem.

Module 3 is designed to build skills and knowledge in negotiation, which is defined as the process of identifying, analyzing, assessing, and defining specifically the problem and attendant information need(s) of a client. This requires interaction between the EIC and client to focus and define the client's problem.

Module 4 deals with retrieval, which is the process of identifying, locating, and securing research and development information pertinent to the client's request. It entails developing a search strategy and consulting a wide variety of resources in order to discover and recover as comprehensive an amount of relevant material as is feasible within time and cost constraints. This means the EIC must keep informed about those human, institutional, and bibliographic resources reasonably accessible to him and must be able to employ these resources to obtain information for application to the client's problem.

Module 5 focuses on transformation, the process of screening, analyzing and/or synthesizing, and organizing the results of a search in a form appropriate for delivery to the client. This means that the EIC is responsible for tailoring the retrieved information in a format and style which are understandable and relevant to the specific client. The

EIC may select and categorize information, compile a bibliography, summarize research data, or cite sources of alternative information on the problem. In effect, the EIC prepares a package of information which the client can use with minimum effort.

Module 6 on the communication process focuses on displaying and conveying the results of the search to the client in a style appropriate for his use in finding a solution(s) to the problem. Communication between the EIC and client can be verbal or written. In either form, the communication is needed to present to the client the package of transformed information, to describe its contents, and to explain how the package content can be used to help solve the problem.

Module 7 is concerned with the process of evaluation, which requires self-examination in terms of EIC processes, role, and function within the information network. Evaluation instruments are constructed to elicit client feedback on services rendered and self-study by the EIC of his effectiveness in meeting the client's request. The objective of employing such evaluation instruments is to pinpoint ways of improving the EIC/client relationship and improving the overall EIC role in terms of his defined function within the information network.

Modules on the transformation, communication, and evaluation processes were strengthened from the first-year form by input of additional interactive training elements. The structure of the course has also been refined so that training elements can be used more autonomously. This alteration accommodated the expressed preferences of previous instructors and trainees for increased flexibility to expand and contract modules to adjust for time and other operational constraints.

The specific objectives for each of these modules are displayed in the "EIC Process Objectives Matrix" (Appendix A).

Materials. Materials needed for the course form include a Training Manual for each trainee and a Guide to Instructional Management and Training Manual for the instructor. The Training Manual is a looseleaf notebook, tabbed into sections which correspond to the seven modules. It contains forms, readings, exercises, guidelines, a Guide to Educational Resources, and other accessories.

The Guide to Instructional Management contains schedules of the training elements in each module, guides for implementing each element, module objectives, and other input materials needed to operate the course. It, too, is a looseleaf notebook, tabbed into seven sections.

Audiovisual materials include: a slide-tape presentation, "The Emerging Role of the Educational Information Consultant," used in the introduction module; an audiotape used in the simulation module; an audiotape for an exercise in the negotiation module; and two slide-tape presentations on ERIC and DIALOG for use in the retrieval module.

In addition, there are T-puzzle packets for a communications exercise in the introduction module and a set of supplementary print materials, the "Ecology Information Packet," which is used for exercises in both the transformation and communication modules.

B. Institute Form

The institute form of the training was designed primarily for persons desiring a short, intensive learning experience suitable for on-the-job training programs. The major difference in the institute and course forms

is the rescheduling of modular elements for the institute, in order that training can be accomplished during ten days, with six-hour daily sessions.

Schedule. The total in-class time for the institute form is 30 instructional hours, divided into ten three-hour sessions. An additional three hours are scheduled each day for individual learning activities. A somewhat greater number of module elements are assigned to individual learning activities in the institute form than is the case with the course form.

Several alternate schedules for the institute form are available. Each of them preserves the entire sequence of modular elements. In one plan, the ten-day schedule is maintained, but each day is divided into four in-class hours, with two hours assigned to individual learning activities. In a second plan, training is conducted in three-hour segments for three weeks (or 15 days). In this latter schedule, large-group activity in class occupies two hours, with the third hour each day devoted to small-team or individual activity.

The two-week schedule is tight; there is not much latitude for the instructional manager to add extra input if needed. There is more allowance for this in the course form and even in the three-week institute schedule.

Format and content. The essential integrity of the format and content of the course form has been maintained in the institute form. A few exercises previously accomplished in class have been rescheduled as individual activities for outside of class.

Materials. The materials for the institute form are identical to those used in the course form with the exception that the schedules and some additional instructions were added to the introductory part of the Guide to Instructional Management.

C. Learning Team Form

As an extension to the already proven concept of individualized instruction, the EIC instructional system added the concept of small-team interaction. The purpose of such a system is to create a highly interactive and innovative learning environment within the framework of the emerging educational information networks. This form of the instructional system is called the learning team.

The concept of a learning team is unusual in the area of independent study programs. Although man tends to spend the majority of his life moving from one group to another and coexisting in several groups at one time, this phenomenon of human behavior has not as yet been capitalized upon in the area of independent study. The successful synthesis of group dynamics and individualized instruction is therefore the ultimate goal of this form of the instructional system. By melding principles of group dynamics and independent study in an innovative way the student becomes the beneficiary of a flexible, interactive, self-directive, small-team (three to five persons) instructional system.

Schedule. The learning team form is designed to fit into ten three-hour team sessions and approximately 30 hours of out-of-group individual activities. The time requirement for the individual activities varies from one session to another. Each three-hour group session represents one module or a portion of a module.

Format and content. The format and content of the learning team is essentially the same as that in the course and institute forms. The objectives, instructional elements, and modular sequencing are identical to the other two forms. However, directions written to make the training materials self-instructional have been added and some exercises have been modified to enable them to be completed as individual or small-team rather than large-group activities.

Instructional activities in the five major process modules have four phases: (1) individual preparation, (2) team learning, (3) team application, and (4) individual and team performance evaluation. During the individual preparation phase the trainees are introduced to the major process of the module through readings and written exercises. This is followed by the team session which is an intensive training experience consisting of interactive exercises and/or simulation activities. During the team session group members apply their knowledge and skill by applying themselves to a real problem situation. Each module concludes with the performance evaluation which provides the individual or all team members an opportunity to evaluate performance in the process module and to relate the process to the overall EIC role.

Materials. Materials needed for the learning team form include a Training Manual and the same audiovisual materials and model information packet used in the course and institute forms. The Training Manual is distinct from that used in the course and institute forms, as it incorporates all the materials necessary for self-direction of the training.

III. DESCRIPTION OF OPERATIONAL FIELD TESTS

Operational field tests (OFT) of the course and institute forms of the EIC instructional system were conducted during the Spring of 1972, to (a) determine the effectiveness of the revised design of the training program for meeting stated objectives, and (b) assess whether the instructional package is transportable. The training program would be considered effective if it imparted the skills, knowledge, and attitudes required to function in the EIC role, and if positive attitudes toward the training program were created in participants. To be considered transportable the instructional package must stand on its own as a self-contained training package. It must prove to be effective in accomplishing the program's objectives when administered by an instructional manager without any direct involvement of the developers.

The product development strategy of the Far West Laboratory was observed during these tests in that no Laboratory representative was present throughout the field test and direct controls were not exercised over the instructional manager's specific use of the content. They were asked, however, to observe the suggested schedule as closely as possible in their specific situation.

A preliminary main field test (PMFT) for the learning team form was conducted during the same period to provide information on the ability of the self-instructional format to achieve the stated objectives while identifying ways in which parts of the program needed to be modified to achieve the objectives.

A. Course Form

Institutional location and arrangements. Four volunteer colleges/universities were selected as host institutions for the OFT: University of North Dakota, Grand Forks; Kansas State University, Manhattan; University of Massachusetts, Boston; and Florida State University, Tallahassee. At all four sites, the course was presented under the auspices of the graduate school or college of education.[6]

Participants. A total of 67 trainees and four instructional managers were involved in the OFT. The instructional manager at the University of North Dakota was the Library Coordinator at the University's Resource Information Center. The instructional manager fo. the Kansas site was a professor of Curriculum and Instruction in the College of Education. The instructional manager for the Massachusetts test was the director of the Network of Innovative Schools. At Florida State University, a professor in the Department of Educational Research performed the instructional manager role. All four of these instructional managers had participated in a training conference at the Far West Laboratory in November, 1971, to orient and prepare them for conducting the course.

The student-participants at all four sites were primarily from educationally related fields. Some of the 20 participants at the University of North Dakota were formally enrolled in the Ph.D. program. The group also included librarians, teachers, principals, media specialists and administrators. The 19 students at Kansas included mostly teachers,

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[6]Credit and Reimbursement Schedule for participants in all field tests of all three forms of the training is exhibited in Appendix B.

principals and adminstrators, as well as several Ph.D. condidates. The composition of the 19 students at the Massachusetts site was approximately one-third New England Telephone Company training department employees, one-third teachers and administrators and one-third staff from a Title III, ESEA, project. In Florida most of the students were enrolled in a doctoral program in educational research.

Schedule. Field tests at three of the sites coincided with the regular second semester for each school. The University of North Dakota test began on January 11, 1972 and was completed on May 2, 1972. The Kansas State test ran from January 17 to May 1, 1972. Massachusetts began on February 7 and ended on June 12, 1972. At Florida State, the OFT was conducted during the spring quarter from March 27 to June 7, 1972.

Method and instruments. Evidence was collected on three areas: trainee cognitive growth, trainee attitudinal or affective response and transportability of the course form.

The procedure for measuring the cognitive effects of the training involved the administration of an assessment exercise at the beginning and end of the course. The course cognitive test included multiple-choice, matching and completion objective items as well as some short-answer subjective items.

Affective responses to the training were obtained by administering a questionnaire containing a number of scaled items to all trainees during Session 10 and again one month after completion of the training. These questionnaires contained scales requiring trainees to rate the overall usefulness, level of difficulty, and applicability of the training to

actual or eventual job situations. Items also asked trainees to rate the quality of the modules and specific elements of the course, and to make self-assessment ratings of the extent to which they had acquired skills in the major processes. Open-ended questions were included to elicit free responses regarding the training program. At about the same time as the administration of this questionnaire in Session 10, a project staff member visited each site to observe one session of the training and to acquire informally comments and evaluations of the training and materials from students and instructional managers.

Each instructional manager was asked to maintain a session-by-session log of observations of student interaction, problems with instructional activities and materials, scheduling or timing difficulties, etc. At the conclusion of the course each instructional manager was asked to complete a form evaluating their involvement and role in the training as well as their grading and packet evaluations. The 20-item "Instructional Manager Evaluation Form" called for ratings and comments on the "operationability" of the course package, the quality and sufficiency of the Guide to Instructional Management, the difficulty level of the training in relation to the specific group of trainees, the sequencing and scheduling of the modules, the role of instructional manager, etc. The form also asked for responses about the cost, packaging, and dissemination potential of the training.

B. Institute Form

The operational field test of the institute form was conducted to determine the reliability of the training under alternate schedules and

with different target groups, and secondly, to provide training for a number of personnel in two operating information networks.

Institutional location and arrangements. Four sites were selected for the operational field tests of the institute form: Reno, Nevada; Rock Hill and Ridgeland, South Carolina, both under the auspices of the South Carolina State Department of Education Research Information Unit; and Cambridge, Massachusetts, under the auspices of the New England Resource Center for Occupational Education (NERCOE).

Participants. A total of 77 trainees and six instructional managers participated in the Institute OFT. The instructional manager at the University of Nevada was a professor in the College of Education. The two District Communications Specialists in the South Carolina Educational Information Network were instructional managers at Rock Hill and Ridgeland. At the NERCOE-sponsored institute, three information consultants from NERCOE alternated responsibility as the instructional manager. The two instructional managers from South Carolina had participated in the conference for instructional managers which was held at Far West Laboratory in November, 1971, to orient and prepare them for conducting the training. The field agents at NERCOE had previously completed the learning team form of the training together. The only exposure the instructional manager in Reno had to the training was self-study of the Guide to Instructional Management and a one-day conference with a member of the development team.

Schedule. The field tests of the institute form took place in June and July, 1972. At Reno, Nevada, and Ridgeland, South Carolina, the training began on June 19th and concluded June 30th. At Rock Hill, South Carolina, the training began June 19th and concluded July 7th. The institute in Cambridge took place July 17-28th.

Method and instruments. A revised evaluation plan was used for the institute form operational field tests. Preliminary findings from the course form field tests had indicated that the Diagnostic Exercise, written pre/post evaluation instrument, measured primarily cognitive growth, not skills. It was decided that this instrument was not appropriate to assess this training. The rating of packages by the development team was then initiated for the institute and learning team forms.

Subsequently, criteria were established and an instrument was developed for the purpose of assessing all the completed information packets and the accompanying "Paper Trail" documents. These documents represent a tangible product which demonstrated trainees' ability to apply the EIC process skills and knowledge.

Three "Skills Self-Assessment" instruments were designed to be administered before training and again following the negotiation, retrieval, and communication modules. These self-report forms were intended to measure trainees' perceived growth in the specific processes of the EIC role.

A questionnaire to measure trainees' attitudes about the training, the "Post-Training Feedback" form, was administered at the conclusion of each institute.

Each instructional manager maintained an observational log, noting those aspects of each session which he found successful or problematic. Each instructional manager also completed an evaluation form at the conclusion of the training. The "Instructional Manager Evaluation Form" was the same as that used in the course form OFT.

One member of the development team visited each institute site as an observer at some point during the training and recorded transactional information such as interactions between participants and effect of the locale.

C. Learning Team Form

The field test of the learning team form represented only the preliminary main field test for this form. Time requirements for design and development made further testing an impossibility within the confines of the program contract.

Institutional location and arrangements. The learning team form was field tested at eight sites:

1. Network and Innovative Schools, Haverhill, Mass. - 3 teams
2. Merrimack Education Center, Chelmsford, Mass. - 2 teams
3. New England Resources Center for Occupational Education, Newton, Mass. - 1 team
4. Evaluation Center, Ohio State University, Columbus, Ohio - 1 team
5. Social Studies Development Center, Indiana University, Bloomington, Indiana - 1 team
6. Center for Science Education, Syracuse University, Syracuse, New York - 3 teams

7. Tulare County Educational Resources Center, Visalia, California - 1 team

8. Instructional Media Center, Michigan State University, East Lansing, Michigan - 1 team

A site coordinator, responsible for the monitoring of team progress was selected at each of the training sites.

Participants A total of 51 persons enrolled in the learning team form of the training. Many of these were persons employed in one way or another within emerging networks or in other types of educational dissemination activities. Of those enrolling, seventeen fully completed the training. Six others submitted evaluations of the training, but failed to submit the packet of information.

Schedule. The materials for the learning teams were mailed to the field test sites during the final week of March, 1972. Each learning team was to complete the ten group sessions at their own pace within a fourteen-week time frame.

Method and Instruments. The learning teams were monitored by a member of the development staff through site coordinators located at each of the team sites. The site coordinators were responsible for collecting and mailing completed team materials to the development staff for evaluation and feedback. Additionally, they were to monitor the progress of the team or teams at their locations.

Assessment instruments were the same as for the institute form. In addition to these formal instruments, frequent communication by telephone and letter was maintained with the site coordinator to collect helpful information for revising this training.

IV. EVALUATION RESULTS OF FIELD TESTS

Three assessment procedures were employed to evaluate the effectiveness of the three forms and the transportability of the course and institute forms.

Skill attainment was measured through instructional manager and staff ratings of the trainee-produced information package and the "Paper Trail." These documents constitute the trainee output in all three forms of the training. "Skill Self-Assessment" instruments were also administered to trainees to record their perceived growth in skill attainment.

Attitudinal evaluation was based on the trainees' rating of the value and appropriateness to them of the various aspects of the training, as recorded on the "Post-Training Feedback" form.

Transportability was investigated on two dimensions: the trainees' level of skill attainment when the materials were administered by different instructional managers without intervention by the developers, and the Instructional Managers' assessment of the program. Each instructional manager submitted an "Instructional Manager's Evalution Form" as well as session-by-session transactional logs to record attitudes about the pertinent variables.

All evaluation forms are exhibited in Appendix C.

A. Skill Attainment

To be certified as an EIC, the trainee must accomplish each of the five processes delineated for the role with at least a "Basic Skill" level of competence. (On a 4-point scale, Basic Skill level competence

corresponds to a 2.0 rating.) Specific objectives for each of these processes and the means used to assess achievement of each objective are listed in the "EIC Process Objectives Matrix" (Appendix A).

Inspection of the Matrix reveals that accomplishment of almost every training objective is demonstrated by completion of a document or documents. The skills-oriented design dimensions of the training prescribe that the learning exercises be actual operations which result in these tangible trainee-produced products.

Thus, assessment of a trainee's skill achievement in each of the five processes would best be accomplished by examining the completed documents, that is, the trainee-produced information package and "Paper Trail."[7] Each of these documents must be completed according to preestablished skill criteria.

The developers adopted the criteria that 90% or more of the trainees would complete the training, producing an information package usable by a client for application to a real-life information problem. When these trainee-produced information packages are assessed for quality, 90% of them would be rated at a level of 2.0 (Basic Skill) or above on a 4-point scale. Additionally, 50% of these packages would be rated at the level of 3.0 (Proficient) or 4.0 (High Proficiency). (These standards would be achieved when the training was conducted according to the instructions given in the Guide to Instructional Management.)

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[7] The trainee-produced information package includes: a bibliography of selected items, abstracts of relevant documents, hard copy or fiche of documents when feasible, and the letter of transmittal. The "Paper Trail" documents are exhibited in Appendix D.

Two different methods of assessing trainees' skills attainment were employed as a result of improving the course evaluation plan for the institute and learning team forms. For these latter two forms, two project staff members rated the information packages, thus permitting a check on interrater reliability. For the course form field tests, the instructional manager at each site evaluated the packages and the developmental team then assigned ratings based on the instructional managers' assessments.

1. Institute and Learning Team Forms Results

For the institute and learning team field tests, the quality of the trainee-EIC's product was assessed by two raters, members of the development team, using the criteria on a 4-point scale (See Appendix C) to arrive at one overall rating of "how well the transformed packet fulfills the client's requirements in terms of the negotiated problem statement." The ratings were then compared for discrepancies. When the two raters disagreed by only one scale value their ratings were averaged. Where they disagreed by two or more ratings the packages were reevaluated by both raters together and they arrived at an agreed-upon rating. Out of a total of 186 ratings, there were eleven (6%) which required adjustment in this way.

Table 1 presents the mean scores of the adjusted ratings for the institute and learning team forms. Note the high degree of consistency of average trainee-EIC performance among sites and between the two forms of the instructional system.

As Table 2 indicates, there was very high agreement between the two independent ratings on both learning team and institute forms with

88% of the pairs of ratings either in agreement or discrepant by only one point. There were 11 out of a possible 186 judgments differing by more than 1 score value. The distribution of ratings by frequency and percentage is displayed in Table 3, and Figure 2 presents the percentage distributions of scores.

2. Course Form Results

The information packages produced by the course participants were evaluated by the instructional manager at each site. Each instructional manager applied the same criteria used by the development team ("How well does the transformed package fulfill the clients' requirements in terms of the negotiated problem statement?") in evaluating their trainees' packages. They also examined the "Paper Trail" documents for evidence of adequate completion of each component process of producing the package. Each instructional manager assigned letter grades based on the completed information package and the accompanying documents. These letter grades and the package assessments of the instructional managers describe the outcomes of the course form OFT. The development team did not themselves collect and assign ratings to these packages, but did interpret the instructor's grade designation and the instructor's verbal assessments of the quality of these packages to arrive at the data presented in Table 4.

From these grade designations and the instructor's verbal assessments of the quality of the packages, we conclude that 65 out of 67 course participants completed information packages that evidenced they had achieved Basic Skill level in the five EIC processes. Forty-nine of the 67 completed information packages demonstrated "Proficient" or "High Proficiency" level of attainment.

TABLE 1

MEAN RATINGS OF TRAINEE-PRODUCED INFORMATION PACKAGES
FOR COURSE, INSTITUTE, AND LEARNING TEAM FORMS

Form & Site	N	MEAN*
Courses:		
North Dakota	20	3.85
Kansas	19	3.52
Florida	9	3.33
Massachusetts	19	2.21
Institutes:		
Reno, Nevada	25	3.33
Rock Hill, South Carolina	17	3.09
Cambridge, Massachusetts	22	2.95
Ridgeland, South Carolina	13	2.88
Learning Teams	17	3.00

*A four-point scale was used to rate the question, "How well does the transformed packet fulfill the client's requirements in terms of the negotiated problem statement?"

TABLE 2

DISCREPANCIES BETWEEN TWO INDEPENDENT RATERS
IN JUDGING QUALITY OF INFORMATION PACKAGES
FOR LEARNING TEAM AND INSTITUTE FORMS (FREQUENCY & PERCENTAGES)

Amount of Discrepancy*	Learning Team Form		Institute Form		Both Forms	
	N	%	N	%	N	%
0	7	41.2	33	42.8	40	42.6
1	8	47.0	35	45.5	43	45.7
2	2	11.8	9	11.7	11	11.7
3	0	0	0	0	0	0
TOTAL	17		77		94	

*A four-point scale was used to rate the question, "How well does the transformed packet fulfill the client's requirements in terms of the negotiated problem statement?" These data are before raters reviewed and re-evaluated packages where there was more than one point discrepancy.

TABLE 3

DISTRIBUTION OF RATINGS OF TRAINEE-PRODUCED INFORMATION PACKAGES FOR LEARNING TEAM AND INSTITUTE FORMS (FREQUENCY & PERCENTAGES)

Averaged Rating	Learning Team N	%	Institute Form N	%	Total N	%
4.0	2	11.8	17	22.1	19	20.2
3.5	6	35.3	17	22.1	23	24.5
3.0	4	23.5	16	20.7	20	21.3
2.5	2	11.8	19	24.7	21	22.3
2.0	1	5.8	6	7.8	7	7.4
1.5	2	11.8	1	1.3	3	3.2
1.0	0	0	1	1.3	1	1.1
TOTAL	17		77		94	
MEAN	3.0		3.1		3.06	

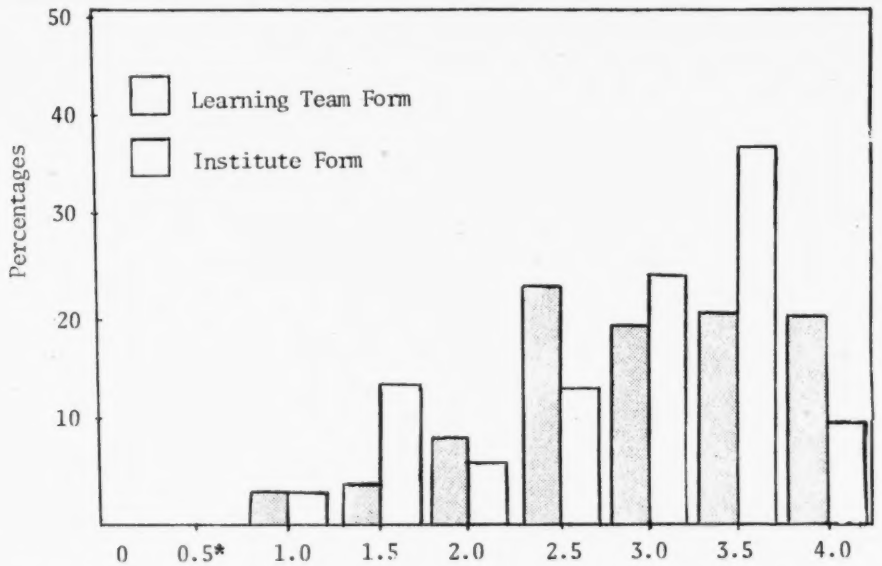
TABLE 4

DISTRIBUTION OF RATINGS OF TRAINEE-PRODUCED INFORMATION PACKAGES FOR COURSE FORM (FREQUENCY & PERCENTAGES)

Rating	N	%
4.0	35	52.2
3.0	14	20.8
2.0	16	23.8
1.0	2	2.9
TOTAL	67	
MEAN	3.22	

FIGURE 2

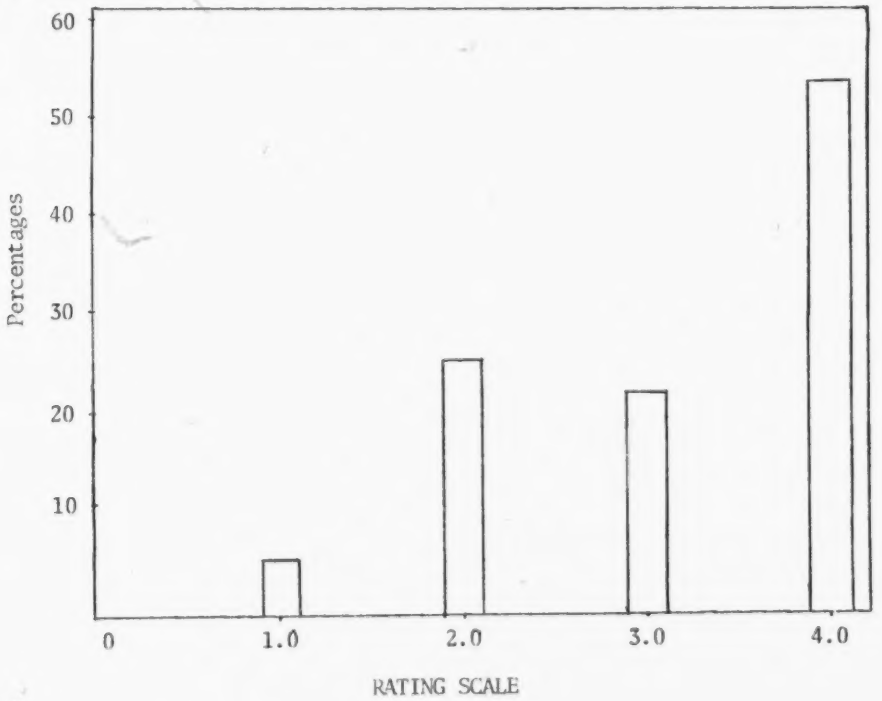
DISTRIBUTIONS OF MEAN RATINGS* OF INFORMATION PACKAGES
FOR INSTITUTE AND LEARNING TEAM FORMS (PERCENTAGES)



*Mean ratings of two independent raters on a 4-point rating scale

FIGURE 3

DISTRIBUTIONS OF MEAN RATINGS OF INFORMATION PACKAGES
FOR THE COURSE FORM (PERCENTAGES)



Several factors may account for variations in the quality of the trainee-produced information packages. Some of these factors include: the extent of resources available, the educational level of participants, and the instructional manager's handling of specific modules in the training. For example, institute participants in both Ridgeland and Cambridge had a very limited resource bank. Participants in Ridgeland also had a lower average level of education than other groups. In the Massachusetts course, several factors may have combined to create a generally poor "climate of interaction" among participants toward completing the training exercises. The very discrepant training needs evidenced by participants at this site were probably the major causes of this. Training personnel for both managerial and clerical employees at a public utility company, as well as educational personnel and graduate students, were mixed together in this group. Some participants, aware of the experimental nature of the program, attempted successfully to alter the program to accommodate more specifically their perceived needs. They also established themselves as critiquers of the materials rather than as involved participants in the training exericses. At both sites in South Carolina, the instructional managers presented the transformation process according to guidelines established by that State's educational information network, rather than according to the guidelines presented in the Guide to Instructional Management, thus altering the organization of the trainees' information packages. In North Dakota, the instructional manager, a librarian, provided considerable extra input in the retrieval process, thus enhancing the

trainees' capabilities in this process.

To summarize, 97% of the course and institute participants completed the training and achieved Basic Skill level (2.0) competence. Moreover, 74% of the course participants, and 65% of the institute participants completed information packages that were rated at level 3.0 or 4.0, indicative of "Proficient" or "High Proficiency" levels of performance. Of the learning team participants who completed the training and submitted information packages (one-third of those who began the training), 89% completed packages that were rated at Basic Skill level, while 71% completed packages that were rated at the higher levels of proficiency.

3. Perceived Change in Skill Level

To measure trainees' perceived growth in skills integral to the role, a three-part "Skills Self-Assessment" instrument was administered to institute participants prior to the training, and the appropriate part was administered again following the negotiation, retrieval, and communication modules. Table 5 presents the comparison of pretest and posttest mean scores for each of the four sites of the institute training.

Analysis of these pre/post measures indicated significant statistical increases in mean rating on the three skills self-assessments, except the "First Skills Assessment" (negotiation skills) rating at Ridgeland, South Carolina, where the perceived gain was non-significant. (In this instance, the pretest inadvertantly was not administered until after several learning exercises in the negotiation module had been completed.)

TABLE 5

COMPARISON OF PRETEST AND POSTTEST MEAN SCORES FOR THE SKILLS SELF-ASSESSMENT

Site	Part	Pretest N	Pretest Mean	Pretest S.D.	Posttest N	Posttest Mean	Posttest S.D.	r	t	p
Nevada	1	25	16.76	5.60	25	27.72	6.63	0.40	8.00	0.01
	2	25	12.28	3.89	25	22.44	3.14	0.50	14.11	0.01
	3	25	24.72	7.64	25	38.48	6.00	0.47	9.42	0.01
Massachusetts	1	23	20.95	5.33	23	27.43	2.84	0.16	5.40	0.01
	2	23	13.82	5.31	23	23.39	2.58	0.47	9.57	0.01
	3	23	30.08	8.00	23	42.21	4.16	0.30	7.26	0.01
Rock Hill	1	16	18.37	4.52	16	25.62	3.73	0.62	7.71	0.01
	2	14	13.28	5.69	14	22.35	3.45	0.09	4.74	0.01
	3	14	25.21	10.58	14	36.00	6.32	0.02	3.19	0.01
Ridgeland	1	12	18.58	4.82	12	20.66	4.72	0.33	1.25	n.s.
	2	11	12.90	5.32	11	20.90	3.00	0.59	5.67	0.01
	3	12	26.83	11.16	12	34.16	4.17	0.47	3.88	0.01

B. Attitudes Toward the EIC Training

For the purpose of reporting the major findings on participants' attitudes toward the training, three questions were selected from the "Post Training Feedback" form. Tables 6 through 8 display these data. Each Table contains the information for a particular question as follows:

1. Table 6 -- "Overall, what is your rating of the EIC training?"
2. Table 7 -- "How would you compare the value of this training you have received in other college/university courses?"
3. Table 8 -- "Would you recommend that others take this training?"

(The number of responses to these questions varies from the number of information packages reported earlier because, in a few cases, packages were not transmitted as requested or were not completed.)

In general it can be stated that the trainees' attitude toward the training was highly positive. When asked to give an overall rating of the EIC training experience, 86% of the course and institute participants described the training as "valuable," responding at levels "5" or "6" on a 6-point scale on which "1" is defined as "useless" and "6" as "valuable." Sixty percent described the training as having "much more value" than other formal training they had received, responding at the level of "5" or "6" on a 6-point scale that ranged from "Much less value" (1) to "Much more value" (6). (An additional 25% responded at the level of "4" on this item.) Eighty-four percent would "recommend that others take

TABLE 6

TRAINEE OVERALL RATINGS OF THE EIC INSTRUCTIONAL SYSTEM
(PERCENT MARKING EACH RATING)

Question: "Overall, what is your rating of the EIC training?"

Site	N	RATING useless 1	2	3	4	5	valuable 6	No Response (NR)
COURSE								
Kansas	18	–	–	–	–	72.0	27.8	
North Dakota	16	–	–	–	12.5	31.2	56.2	
Florida	9	–	11.1	11.1	55.5	11.1	11.1	
Massachusetts	10	10.0	–	10.0	10.0	70.0	–	
INSTITUTE								
Nevada	26	–	–	–	7.7	27.0	61.5	3.8
Massachusetts	23	–	–	–	–	30.4	69.6	
Ridgeland, South Carolina	13	–	–	–	15.3	15.3	69.2	
Rock Hill, South Carolina	16	–	–	–	6.2	12.5	81.2	
LEARNING TEAM								
Visalia, Cal.	3	–	–	–	–	100.0	–	
Michigan State University	4	–	–	–	–	100.0	–	
NERCOE, Mass.	3	–	–	–	–	33.3	66.7	
Mass. #1	3	–	–	–	–	–	100.0	
Mass. #2	4	–	–	–	–	50.0	50.0	
Merrimack, Massachusetts	7	–	–	14.4	–	42.8	42.8	
TOTAL	155	0.6	0.6	1.9	8.6	36.1	51.7	0.6

TABLE 7

TRAINEE COMPARISONS OF THE VALUE OF THE EIC INSTRUCTIONAL SYSTEM TO OTHER UNIVERSITY TRAINING COURSES (PERCENT MARKING EACH RATING)

Question: "How would you compare the value of this training to training you have received in other college/university courses?"

		RATING						
		much less					much more	
Site	N	1	2	3	4	5	6	NR
COURSE								
Kansas	18	–	5.6	–	22.2	50.0	22.2	
North Dakota	16	–	–	–	6.2	62.5	31.2	
Florida	9	11.1	11.1	–	55.5	22.2	–	
Massachusetts	10	10.0	10.0	20.0	30.0	20.0	10.0	
INSTITUTE								
Nevada	26	–	–	15.3	30.7	30.7	23.0	
Massachusetts	23	–	4.3	–	30.4	30.4	34.8	
Ridgeland, S.C.	13	–	–	–	23.0	23.0	38.4	15.3
Rock Hill, S.C.	16	–	–	6.2	12.5	56.4	18.8	6.2
LEARNING TEAM								
Visalia, Cal.	3	–	–	33.3	33.3	33.3	–	
Michigan State University	4	–	–	–	25.0	75.0	–	
NERCOE, Mass.	3	–	–	–	66.7	33.3	–	
Mass. #1	3	–	–	–	33.3	33.3	33.3	
Mass. #2	4	–	–	25.0	50.0	25.0	–	
Merrimack, Massachusetts	7	–	–	–	28.6	28.6	42.8	
TOTAL	155	0.6	0.6	6.6	24.0	40.1	26.2	1.9

TABLE 8

TRAINEE RECOMMENDATIONS TO OTHERS OF THE VALUE OF PARTICIPATING IN THE EIC TRAINING (PERCENT MARKING EACH RATING)

Question: "I would recommend that others take this training."

Site	N	RATING definitely no 1	2	3	4	5	definitely yes 6	NR
COURSE								
Kansas	18	—	—	—	5.6	39.0	56.0	
North Dakota	16	—	—	—	6.2	31.2	62.5	
Florida	9	11.1	11.1	—	44.4	—	33.3	
Massachusetts	10	—	—	10.0	10.0	50.0	30.0	
INSTITUTE								
Nevada	26	—	—	7.7	19.2	27.0	46.1	
Massachusetts	23	—	—	—	4.3	13.0	82.7	
Ridgeland, S.C.	13	—	—	—	—	30.7	69.2	
Rock Hill, S.C.	16	—	—	6.2	6.2	25.0	62.5	
LEARNING TEAM								
Visalia, Cal.	3	—	—	33.3	—	66.7	—	
Michigan State University	4	—	—	25.0	—	25.0	25.0	25.0
NERCOE	3	—	—	—	66.7	—	33.3	
Mass. #1	3	—	—	—	—	33.3	66.7	
Mass. #2	4	—	—	25.0	25.0	50.0	—	
Merrimack, Massachusetts	7	—	—	14.2	—	14.2	14.2	57.4
TOTAL	155	0.6	0.6	5.2	11.6	27.2	51.6	3.2

this training," responding at the level of "5" or "6" on a 6-point scale, ranging from "Strongly disagree" (1) to "Strongly agree" (6). (The lower ratings from Florida participants might be attributed to the higher level of education of that group. All participants were doctoral students in educational research who were completing their studies and appeared to perceive the course as too elementary for them. However, several stated they would like to have taken the course at the beginning of their graduate program.)

C. Transportability

The most critical question in evaluating the transportability of the training package was whether the Instructional Manager could successfully administer the materials not developed by himself yet acceptable results in the trainees' level of skill achievement would be obtained. There are two measures of this attribute: the level of trainees' skill attainment, and the Instructional Managers' self-reports on the ease of handling the material.

The evidence presented in the preceding section showed that more than 90% of the trainees who participated in the course and institute field tests demonstrated at least a Basic Skill level of achievement. This finding indicates that the standard for trainee skill attainment can be achieved when the training is administered by different Instructional Managers in varying settings.

Reports of the ten Instructional Managers for the course and institute forms about the state of operational readiness were highly positive. In response to the question (on the"Instructional Manager's Evaluation Form") "Did you find the EIC training package fully operational...?"

nine of the ten instructional managers described the training as "highly operational" responding at the level of "5" or "6" on a 6-point scale, ranging from "Not at all operational" (1) to "Highly operational" (6). The following selected responses present a clear picture of the Instructional Managers' evaluation of the adequacy of the materials.

Course Form Instructional Manager--Kansas

"A fantastic job of planning. No difficulty at all. Directions more than adequate--very explicit."

Course Form Instructional Manager--North Dakota

"Materials quite complete. Occasionally necessary to supplement them. Personally found the background for the Instructional Manager adequate. Would question the preparation for someone who is not very familiar with information retrieval and the ERIC system. I think you have developed a good course to satisfy a real need."

Course Form Instructional Manager--Florida

"Pleasantly surprised with the degree to which materials had become operational since the Berkeley training session. Instructional Manager needs a general background in library science or dissemination/diffusion."

Institute Form Instructional Manager--Rock Hill, South Carolina

"Could have used more information on interviewing techniques and knowledge of group dynamics. Excellent use of management by objectives."

Institute Form Instructional Manager--NERCOE, Massachusetts

"Feel strongly that the materials gave the instructor a great deal of support. Only problem, personal lack of experience in the field."

Additionally, to the question, "How do the EIC materials compare with other instructional materials you have used or taught," responses were:

"a pleasure to work with materials which were so complete and well presented"
"superior to most others, better planned, better psychology of learning"
"better than most quasi pre-packaged forms of instruction;"
"much better"

"much more effective, emphasis of course on trainee participation and involvement (is) very effective learning device"
"instructional manager's input excellent;"
"average"
"favorably"
"I was very pleased"

In conclusion it can be stated that the level of trainees' skill attainment, and the reports of the instructional managers, indicate the materials apparently are "self-contained" and capable of producing results under varying conditions when the training is conducted according to the guidelines given in the Guide to Instructional Management.

D. Target audience

A fourth concern of the developers was the question, "Who is the target audience for the EIC training?" Two ways of looking at this question were applied : (1) certain pertinent attributes of those who participated in the training were recorded and their responses to such questions as "how appropriate the level of the training is to a person of their background and experience"were examined, and (2) participants were asked, after completing the training, to project who the appropriate target audience should be.

Table 9, "Descriptive Analysis of Test Populations by Form" summarizes information pertinent to sex, age, position, degree and major field of study. From this table several general statements may be made regarding the composition of the audience relative to the specific form of the instructional system. Generally speaking the composition of the audience was evenly divided between males and females, of whom better than 50% were between 21 and 35 years of age. However, slightly more females than males took the course and institute forms of the training whereas almost three times as many males participated in the learning team form. Whether

TABLE 9

DESCRIPTION OF TEST POPULATIONS BY FORM

		Course	Institute	Learning Team	Total
SEX	Male	26	25	19	70
	Female	30	36	6	72
AGE	21-35	32	24	14	70
	36-50	15	18	9	42
	51-65	7	13	2	22
POSITION	Information Spec.	1	2	8	11
	Librarian	6	11	2	19
	Subj. Area Spec.	1	5	0	6
	Teacher	12	26	5	43
	Dept. Chairman	0	4	1	5
	Principal/ Assistant Prin.	7	2	3	12
	Administrator	6	2	4	12
	Grad. Student (M.A.)	0	1	0	1
	Grad. Student (Ph.D.)	16	0	2	18
	Other	7	8	0	15

TABLE 9 (continued)

DESCRIPTION OF TEST POPULATIONS BY FORM

		Course	Institute	Learning Team	Total
DEGREE HELD	Less than BA	0	4	2	6
	BA	15	26	6	47
	MA	33	26	16	75
	Ed.D.	0	1	1	2
	Ph.D.	2	0	0	2
	Other	0	0	0	0
	No Response	6	4	0	10
MAJOR DEGREE FIELD	Info./Library Sci.	9	7	3	19
	Education	40	36	14	90
	Behav. Sci./ Soc. Sci.	2	5	1	8
	Sciences	0	0	1	1
	Humanities/Arts	3	7	2	12
	Business	0	1	1	2
	Other	1	5	2	8
	No Response	0	1	1	2

this is a function of form or of recruitment could be a potential question for further analysis. Teachers were the most representative group of the trainees, comprising 32% of the total audience. Librarians and doctoral students followed with 13% and 12% respectively. Persons holding master's degrees represented better than 53% of the total sample with 63% of all degrees in the field of education. Because of the uniformly high ratings on the affective items by participants in the training, a differential analysis by educational level and occupation of participants was not undertaken. Almost all participants rated the training as "about right" for persons of their level of education and experience. (Fifty-three persons having a B.A. or less perceived the training to be slightly more difficult than those with a higher level of education). They found the value of the training to compare favorably with that received in other courses and would highly recommend that others take the training.

It became evident through the field testing that the skills developed during the training relate not only to the emerging EIC role, but to many other roles. Teachers, curriculum directors, principals, subject-matter consultants, graduate students and persons from many other fields of work reported that they found the training "definitely applicable to their professional situation," and they judged the training to be a worthwhile learning experience for persons in a variety of roles. "All persons in education, teachers, principals, reseachers, audiovisual specialists, librarians, curriculum specialists, and administrators," were some of the appropriate target audiences named by participants in the field tests.

Instructional managers also rated the materials valuable for a wide range of persons, as indicated by some of their responses to the question, "For which types of personnel do you think the EIC training is most appropriate?"

"librarians, media specialists, educators at all levels"
"curriculum consultants, teachers engaged in leading others in curriculum improvement"
"research/information linkers in public schools, library services personnel, most Master level graduate programs in education"
"people using it to solve problems"
"any educator who can realistically become an EIC or field agent -- teachers,principals, librarians, subject area specialists"
"teacher aides with one to three years of college preparation, librarians, media specialists, curriculum students"
"librarians, consultant types"
"experienced teachers, librarians or 'coordinators', (team leaders, etc.)"
"consultants, media specialists, librarians, supervisors"

"Librarians" and "teachers" were the two groups most often named as "persons to whom the training is applicable." Administrators were another frequently named group. However, administrators did not tend to name themselves as an appropriate group whereas other groups did name them as potentially benefitting from the training. (These data and other indications led to the conjecture that administrators perhaps wanted to "know about" the content of the training, but did not perceive their involvement in the actual skills training to be as pertinent for application to their role as did teachers and librarians.)

V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The primary purpose of the EIC training development project was to create a training program to inculcate the basic skills and motivation for persons to play a new role in education, the Educational Information Consultant (EIC).

Inherent in the EIC role is a complex web of human interaction and technical skills in information retrieval, processing, and distribution. The intention of the developers was to create a flexible training program in which the processes and content of the materials closely simulated the real-life tasks the EIC would be performing, thus maximizing the transfer of the skills to eventual on-the-job performance.

In investigating and reporting the outcomes of the field tests of this effort, the developers encountered difficulties similar to those of applied researchers everywhere. One major reporting problem, for example, was accurate assessment of changes which took place in skills developed as a result of the training, despite the relatively short time period between pre- and post-measures and the "intangible" nature of some variables (such as, ability to "communicate orally in order to develop rapport with a client"). In deriving conclusions, the developers examined a considerable volume of "transactional" evidence in addition to the more concrete data presented in Chapter IV. This included the instructional managers' logs, reports of visits conducted to each site, and feedback from participants in a number of informal discussions. Conclusions are summarized in this chapter.

1. The training program is effective.

The training program can be considered effective if performance standards established for skill and knowledge objectives are met, and if positive attitudes toward the training program are created in participants.

From the evidence presented in Chapter IV it was clearly established that the training is effective. The notable record of completion in the course and institute forms, the generally high quality of the trainee-produced information packages, and the participants' strongly positive response to the training in general provide convincing evidence of the effectiveness of this training program.

2. The course and institute forms are transportable.

To be considered transportable the training package must prove effective in accomplishing the program's objectives when administered by an instructional manager or when self-administered, as in the Learning Team form, without intervention by the developers.

The established criteria for skill attainment was achieved by participants at all test sites of the course and institute forms of the training, indicating that the guidelines presented in the Guide to Instructional Management were sufficient to enable instructional managers with varying backgrounds and experience to effectively administer the training and achieve acceptable results. In that sense, the course and institute forms of the training can be considered transportable.

3. The learning team form is not yet transportable

The learning team form cannot be said to be operational (transportable)

at this point because of the low completion rate for this form.

Some of the unexplored variables which may account for the failure of this form to meet performance standards are: absence of an instructional manager to provide structure and motivation, lack of incentives in the form of credit, lack of clarity and comprehensiveness in the programmed format, and difficulties in institutional arrangements, such as gaining access to the resource bank and/or audio-visual equipment. Further investigation of these and other factors needs to be undertaken. In addition, further developmental work needs to be completed before this form can be said to be operational.

4. The instructional package can be easily adopted.

The EIC training package is "self-contained" and can be introduced into a system easily and with low cost. Specific conditions for the implementation of the training are discussed below.

The role of the instructional manager. From all indications, the Guide to Instructional Management appears to be sufficiently comprehensive and supportive for autonomous use by instructional managers with various backgrounds. Further, the training can be competently administered by a qualified instructional manager without extensive advance preparation. (It is instructive to note that the highest level of skill attainment, as evidenced by the completed information packets, was demonstrated by the group where the instructional manager had ostensibly the least pertinent background in the subject matter, and a minimum of prior exposure to the materials.)

An instructional manager who has some background information

retrieval and dissemination does appear to be helpful in maximizing the effect of the training. In-depth knowledge of the subject matter, however, is not as important a consideration as having confidence in one's ability to handle comfortably the highly interactive aspects of the training experience.

In fact, one factor seeming to account for the unusual pulling power of the training in all forms is this highly interactive structure. The trainees offered a real service to a fellow trainee and accomplished a large portion of that service while working in peer groups. While a few instructional managers and trainees initially experienced uneasiness with this mode of training, almost all participants became enthusiastic about this approach by the completion of the training experience. A commitment to the value of this mode of training would seem to be a prime requisite for the instructional manager.

An instructional aide to assist in the collection and distribution of materials is a definite asset in managing the training; this individual needs no training however.

Composition of the target audience. The EIC instructional system appears to be applicable to the needs of most educators, as well as to librarians and persons working in education information networks. Responses from participants with a wide variety of educational backgrounds, experience and training needs to such queries as how they "liked," "learned from," and "found the level of training appropriate to persons of their background and experience," indicated that they perceived the training to develop skills which can be applied directly to research, information

retrieval, and knowledge utilization tasks in many roles. Through the step-by-step explication of and exercise in the processes involved in initiating and executing a thorough information search, and in communicating the results of the search, it appears that each participant gained important perceptions of the realities of the information-exchange process between two persons, creating the climate for widespread diffusion of research information.

The level of the training appears to be most suitable for persons at the Master's degree level, and can be used for either pre-service or in-service training.

Installation costs. No extraordinary costs or measures are entailed in implementing this training program. Four major categories of installation costs are discussed briefly and compared across forms: materials costs, instructional management costs, facilities and overhead costs, and cost to trainees.

Materials costs would be approximately the same for all three forms. Materials needed for the training include a Training Manual for each participant and an Instructor's Kit containing the Guide to Instructional Management, two filmstrips, two cassette tapes, a set of "T-puzzles," and several[8] copies of the model information packet.

The learning team form does not require a separate Guide to Instructional Management, but the Training Manual is larger and more costly than that

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[8]The number of model information packets needed depends upon class size.

required for the course and institute forms. The Training Manual is a comsumable item; it would normally be purchased individually by each participant. The Instuctor's Kit is a durable item and requires no replacement or additonal parts.

Instructional management costs are probably highest for the course form of the training. An instructor's salary for one-quarter time for one semester could range from $1,500 to $2,500 or more depending on rank and salary of the instructor. Similar costs for the institute would be $500 to $1,000 for ten days. There are no costs in this category for the learning team form.

Facilities and overhead costs to a sponsoring school or agency are difficult to specify. The course form would seem to entail the largest expenditure since it is offered over a semester's time and typically there is no requirement that student fees totally cover such costs. The institute form on the other hand, is a go/no-go situation depending on total anticipated costs and enrollments. Institute fees are normally set to cover all costs. The learning team requires no expenditure for facilities as such; but, as with the other two forms, access to a resource center and ERIC collection is essential. Participants must also have access to a cassette tape recorder and filmstrip projector.

Costs to the trainee include enrollment fees, materials, and residential costs (for the institute participants). Enrollment fees for all three forms would vary only slightly. The course form, when offered in a regular public institution would have the lowest tuition fees. The learning team and institute tuition fees would be approximately the same

(between $60 and $80). Materials costs to the trainee for the course and institute forms would consist only of the cost of the Training Manual (about $10). For learning team participants, the cost of the entire instructional package would have to be shared among team members, thus making the cost to the trainee higher for this form. (A rental agreement for the A-V components in the training package was investigated for the learning team form, but the sponsoring institution ascertained that distribution costs for this system would be unwarranted.) Loss of on-the-job time and residential fees would be of most concern to institute participants. Depending upon these two factors, the institute form of the training could be the most expensive to the trainee.

Some cost comparisons among the three forms are displayed in Figure 3.

FIGURE 3

COMPARATIVE INSTALLATION COSTS AMONG FORMS OF THE EIC TRAINING

	Instructional Management	Material Costs	Facilities Costs and Overhead	Cost to Trainee
Institute	**	**	**	***†
Course	***	**	***	*
Learning Team	0	**	*	**

*** = High
** = Medium
* = Low
0 = None

†Includes costs of residence at site during the institute.

Yet, the institute form appeared to be the most appealing to a large majority of trainees. Over half of all participants in all forms of the training selected the institute as their preferred form for the training. (This may be due to the fact that a great number of school personnel expect to participate in training institutes during the summer recess and would value the opportunity to participate in the EIC training at that time.)

5. The training program is flexible

The specific claims made for this product apply when the training is conducted according to the modular schedule and guidelines presented in the Guide to Instructional Management. Further, the developers believe the training to be most efficacious when training in the five processes evolves sequentially as presented in the existing modular design.

However, there has been sufficient experience testing individual modules and elements to conclude that the package is flexible and adaptable to a variety of settings, schedules, and target groups.

Considerations especially important to successfully restructuring the program to match specific needs of particular audiences are: to assess accurately the skill level of the participant, and to have an awareness of the functional context in which they intend to apply the training. It would then be possible to expand particular modules where more in-depth training is needed, or to present abbreviated "overview" versions of the training when appropriate.

Several modules have been field tested individually for this purpose: the introduction module; the introduction and simulation modules together,

the negotiation modules, and the retrieval module. Other combinations appear feasible. For example, retrieval and transformation could be combined into one module and/or expanded for particular reference to a retrieval staff. Negotiation and communication, combined into one module and using the model information packet, could be used for developing interviewing skills among field agents.

A number of elements from several of the training modules also have been used individually or in combination in a variety of settings. Such elements include: the audio-slide presentation on "The Emerging Role of the EIC," the "T-puzzle," "Negotiating a Client Problem" (a role-playing exercise) "Obserwing the Negotiation Process" (a simulation audio-tape), "Analyzing and Designing a Negotiation Checklist," "Introduction to Information Systems," (audio-slide presentation on ERIC and DIALOG), "Symbol Interpretation Exercise," "Exercise in Making Relevance Judgments," "Selecting and Organizing Information" (a simulation exercise using a model information packet) and, "Evaluating an EIC Role" (an evaluation simulation exercise). Two items in the package received particular attention for individual purchase and use. These were the "Ecology Information Packet," and the directory, A Guide to Educational Resources.

The module requiring the greatest adjustment to direct it appropriately to the level of sophistication of the training group is retrieval. The retrieval module included "hands-on" instruction in how to use a number of information-retrieval tools, including the ERIC system. Exercises demonstrating the "influence of subjectivity in the retrieval process" were another important aspect of the module.

Observations during the field tests indicated a few participants were very sophisticated in retrieval skills, and had knowledge of the ERIC system. On the other hand, an astonishing large number of persons had an insufficient experience in utilizing information resources of any kind. Many (including librarians) were totally unfamiliar with how to use the ERIC system. For those already knowledgeable about the ERIC system, the section in the EIC training on ERIC was too elementary. In some cases these persons desired more advanced technical information about other systems, such as operation of the system and economics of installation. All others appeared to need even more input than the module provided to familiarize themselves with the range of resources available and to develop proficiency in the use of these tools.

A spot-check of the "Post-Training Feedback" forms did indicate that persons with a wide range of backgrounds both "learned a lot" and "liked (it) a lot." It was concluded that elements of this module are appropriate to be used by persons with very discrepant backgrounds and roles, but the instructional manager must be prepared to design alternate strategies and provide additional input here depending upon his assessment of the level of sophistication of the instructional group. (This did happen at several locations. In North Dakota, for example, an entire session was devoted to a thorough tour of the resources center there, and the instructional manager provided an additional exercise in selecting ERIC descriptors.)

Transformation is another module in which instructional input should vary with the level of sophistication of participants.

In the transformation process the developer's expectations were that, at a minimum level, trainees would be able to screen resources for specific relevance to a client's request, and organize or categorize and display the selected information in an "actionable" package for the client. Higher levels of achievement in this process would include the ability to write an abstract of selected items in the information package, and to synthesize information for a client.

In addition to technical skills, the transformation process entails judgment and courage in effectively organizing, analyzing, and synthesizing information. This process (the ethical core of the EIC role) requires understanding of and commitment to a particular philosophy about information-handling.

The developers adopted the philosophy that if the role of the EIC is to be effective, some effort to organize the results of research prior to its communication is an essential element to integrating that information into practice. The view presented was that with the volume and complexity of information now available, it is not feasible to imagine that one can convey all the information that exists. In fact, judgments about relevancy <u>are</u> made, and the contents <u>are</u> organized in presenting a package to the client.

Unquestionably, the task of objectively presenting the value-laden information of educational research is a more difficult one than presenting such "hard data" as crop growth rate after application of fertilizer.

In the training however, the effort was made to enhance the objectivity of the information search by helping the trainee develop

a sensitivity to his limitations, both in retrieving and judging the relevance of the retrieved information, and by helping him develop communication skills so that he would be able to assess and respond to the real concerns and information needs of the client. These two attitudes appear to provide a stronger basis for assembling an information package which is comprehensive, objective, credible, and accurate than the belief that one can give the client "everything there is."

Additional guidelines for adaptation of the training package to specific conditions and audiences will be included in the dissemination version of the instructional package.

B. Recommendations

The Educational Information Consultant training package, the result of a well-conceived, carefully implemented two-year developmental effort, has been thoroughly tested and revised on the basis of field test data. Ample evidence has been cited to support the claim that the course and institute forms of the training are operational and ready for release.

This product is timely, responding to an important felt need in today's educational world, that of disseminating and utilizing information to improve practice. The numerous requests for the EIC package which have been directed to the development team, although effort has not been expended to publicize it, appear to indicate the value which users attribute to this product for training in this area.

The developers recommend, therefore, that the course and institute forms of the training (combined into one form, Course/Institute, for cost-effective production) be produced and distributed.

Further, the learning team form, in which considerable interest has

also been evidenced, should undergo the additional development and evaluation required to bring it to operational readiness. Support needed for the revision, field testing, and evaluation of this form should be sought.

Recommendations concerning the development of additional training in educational information dissemination (a supplementary objective of the EIC training development project), have been described fully in the proposal: B. Banathy, et al. Development of Training Resources for Educational Extension Services Personnel. Berkeley, California: Far West Laboratory for Educational Research and Development, March, 1972.

In this document, a model of an educational extension system performing an "outreach" rather than "responsive" function was projected. A plan to select and train personnel to serve successfully in managerial, retrieval, or "extender" roles within this system was outlined. The creation of an instructional problem-solving network to support the development of the emerging Educational Extension System was also proposed.

The EIC training, appropriate for both retrieval and "extender" roles in this system, could provide the core for the larger training program envisioned in this effort.

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Appendix A

EIC Process Objectives Matrix

APPENDIX A

EIC PROCESS OBJECTIVES MATRIX

	EIC Negotiation Checklist	Observer Checklist	Search Referral Form	Search Procedure Form	Transformation Checklist	EIC/Client Communication Checklist	EIC Self-Evaluation Form	Client Feedback Form	Letter of Transmittal	Information Packet	Training Exercises
INTRODUCTION											
1. Name the five processes of the EIC role and describe the basic function of each.							X				X
2. Explain how the EIC service can be integrated into the existing educational system in terms of people and functions.							X				X
3. Express interest in the EIC role as a productive approach to improving school operations.							X	X	X	X	X
4. Show a positive attitude toward the potential of the EIC role, at least to the point of being willing to complete a training course for performing the role.							X	X	X	X	X
SIMULATION											
1. Critique an EIC/client interview in order to become conversant with the nature of the negotiation process.		X									
2. Identify major elements of the retrieval process by naming sources of educational R and D information relevant to a given problem.			X								
3. Choose appropriate formats for the transformation of information to be returned to the client.					X						
4. Critique an EIC presenting transformed material to a client.						X					
5. Express an understanding for the value of evaluation within the context of the EIC role.											X
6. Describe the sequence and relationship of the processes comprising the EIC role.											X
7. Express a willingness to strive toward higher levels of performance in the knowledge and skills required to function effectively as an Educational Information Consultant.											X
8. Express commitment to the importance of helping educators improve opportunities to learn by providing well-tested R and D information and products.											X

EIC PROCESS OBJECTIVES MATRIX

	EIC Negotiation Checklist	Observer Checklist	Search Referral Form	Search Procedure Form	Transformation Checklist	EIC/Client Communication Checklist	EIC Self-Evaluation Form	Client Feedback Form	Letter of Transmittal	Information Packet	Training Exercises
NEGOTIATION											
1. Define the process of negotiation within the context of the EIC role.	X					X				X	
2. Explain the effect(s) of the negotiation process on performance of the EIC role.	X	X				X				X	
3. Ask questions about a client's problem which elicit information essential to a precise formulation of the search request.	X	X								X	
4. Guide face-to-face interviews in order to: (a) interpret and clarify a client's information needs, and (b) set priorities among them.	X	X								X	
5. Listen in order to comprehend fully and objectively what is said in formal and informal interchange with client(s).	X	X								X	
6. Communicate orally in order to develop rapport with a client and to transmit information and ideas effectively.		X			X					X	
7. Make general inferences as to the client's concerns, motivations, and level of expertise in terms of the problem area.	X	X								X	
8. Compose precise written and oral descriptions of a client's problem.	X			X				X	X		
9. Formulate a satisfactory contract with a client for the service(s) to be provided.	X	X							X		
10. Recognize whether the statement of a client's problem requires further clarification, analysis, or redefinition.										X	
11. Question, discuss, and secure relevant information from a client when there is a need to redefine or restate the problem.										X	
RETRIEVAL											
1. Define and explain the significance of the retrieval process within the context of the EIC role.						X				X	
2. Develop an efficient and comprehensive search plan on the basis of (a) information obtained about the problem during negotiation with the client, and (b) the characteristics of the resource system to be utilized.			X	X							
3. Know how to conduct searches in a variety of educational resource systems, including the ERIC system.			X						X	X	
4. Make judgments about and be able to select the relevant information from a particular system.				X				X	X	X	
5. Recover the selected material.				X					X		
6. Recognize the influence of subjective factors on the retrieval process, and seek to minimize the effect of these factors to expand the objectivity of the search.				X				X	X	X	

EIC PROCESS OBJECTIVES MATRIX

	EIC Negotiation Checklist	Observer Checklist	Search Referral Form	Search Procedure Form	Transformation Checklist	EIC/Client Communication Checklist	EIC Self-Evaluation Form	Client Feedback Form	Letter of Transmittal	Information Packet	Training Exercise
TRANSFORMATION											
1. Define the process of transformation within the context of the EIC role.							X				X
2. Explain the effect(s) of the transformation process on performance of the EIC role.							X				
3. Screen resources and products for specific relevance to a client's request.					X				X	X	X
4. Discriminate between and develop appropriate alternative formats and styles for presenting screened information.					X					X	
5. Assess self-competence to synthesize information for a client.							X		X		
6. Abstract accurately the contents of a document.										X	X
7. Organize and display screened information.						X			X	X	
COMMUNICATION											
1. Define the process of communication within the context of the EIC role.		X					X		X		X
2. Explain the effect(s) of the communication process on performance of the EIC role.							X				X
3. Prepare both an oral and a written report transmitting the transformed information to the client.						X				X	
4. Convey to the client judgments about the quality and appropriateness of information to the client.						X			X	X	
5. Identify and delineate ways in which the client can make effective use of the information presented.						X			X	X	
6. Attend to client responses in such a way that communication techniques can be adjusted.						X					X
7. Verify that information provided satisfies the request as negotiated with the client.						X		X	X		
EVALUATION											
1. Know the rationale behind the evaluation process.							X	X			X
2. Understand the implications of the evaluation process for the complete EIC role.							X	X			X
3. Analyze and assess one's own performance of the processes of negotiation, retrieval, transformation, and communication.							X		X		
4. Obtain feedback and follow-up evidence from client as to the effectiveness and utility of the service provided.								X			
5. Synthesize and evaluate instruments used in this process to gain as complete a picture as possible of the effectiveness of the EIC role and function.							X	X	X		
6. Assess the overall value and effect of the EIC's operations to provide a basis for improvement of services.							X	X			
7. Recognize that functions, roles, or administrative procedures in the EIC system may need to be adjusted or changed as the result of evaluation.									X		X

APPENDIX B

CREDIT & REIMBURSEMENT SCHEDULE FOR FIELD TESTS OF EIC TRAINING MATERIALS

Institution	Instructional Manager	Credits	Reimbursement
University of North Dakota (Course)	Mrs. Patricia Berntsen Library Coordinator Resource Information Center	2 semester units	Full tuition reimbursement ($37.50) paid to all participants.
Kansas State University (Course)	Dr. Harvey Littrell Professor of Curriculum and Instruction College of Education	3 semester units	Full tuition reimbursement of $50 paid to 15 of 19 participants. Four participants paid own tuition.
Florida State University (Course)	Dr. Michael DeBloois Professor, Dept. of Educational Research	3 quarter units	Full tuition reimbursement of $50 paid to each participant.
University of Massachusetts (Course)	Dr. David Crandall Director, Network of Innovative Schools	3 semester units	Tuition fee, $80; no participants received reimbursement.
University of Nevada (Institute)	Dr. Charles Bartl Professor College of Education	3 semester units	Tuition fee, $57; reimbursement of $50 to all 25 participants.
Winthrop College (Institute)	Ms. Tamara Cansler District Communications Specialist South Carolina Education Information Network	3 semester units	Tuition fee, $60; 12 participants received tuition reimbursement from local school districts. Five paid own tuition.
Ridgeland, So. Carolina (Institute)	Mr. Alfonso Evans District Communications Specialist South Carolina Education Information Network	Teacher Certification Renewal Credits	Participants were paid $75/week by local school district for two hours work per day in addition to completing training.
New England Resource Center for Occupational Education (NERCOE) (Institute)	Mr. Larry Brown Mr. David Roy Mr. Robert Trombley Educational Information Consultants New England Resource Center for Occupational Education	3 semester units	Tuition fee, $50; participants who completed training for credit (17) reimbursed $25.
University of California Independent Study Program (Learning Teams)		3 quarter units	Tuition fee, $50; tuition reimbursement of $25 for those completing for credit (3).

Appendix C

Evaluation Instruments

C-1 Biographical Information Form

C-2 Skills Self-Assessment Forms

C-3 Post-Training Feedback Form

C-4 Instructional Manager's Evaluation Form

C-5 Evaluation Checklist for Trainee-Produced Information Package

APPENDIX C-1

BIOGRAPHICAL INFORMATION

For our records and for future correspondence concerning our training, please complete the following items:

Name _____

Birthdate _____ Male_____ Female____

Address _____
No. Street Apt. No.

_____
City State Zip Code

What is your present position/job title? _____

What is your highest academic degree? _____

In what major field? _____

To what extent have you been involved in disseminating educational information?

_____

_____

What previous training which specifically relates to information science, librarianship, or to dissemination of educational research have you had?

_____

_____

What is your major purpose for taking this course? _____

_____

_____

What kinds of skills, knowledge, etc. do you hope to gain from this training?

_____

_____

APPENDIX C-2

Name

Place Date

FIRST SKILLS ASSESSMENT

The rating scales which follow permit a detailed assessment of your strengths and weaknesses in certain skills associated with this training. After reading each of the items below, circle the number which most nearly corresponds with your opinion at this time of your ability to:

	Not at all			Very well
1. Help someone else define and pinpoint a problem statement in a consultant/client relationship?	1	2	3	4
2. Ask questions about a client's problem which brings out information essential to a clear statement of what he wants.	1	2	3	4
3. Guide face-to-face interviews in order to: (a) interpret and clarify a client's information needs and (b) set priorities among them.	1	2	3	4
4. Make general inferences as to the client's concerns, motivations, and level of expertise in terms of the problem area.	1	2	3	4
5. Compose clearly-phrased written and oral descriptions.	1	2	3	4
6. Establish a verbal or written contract for services or activities.	1	2	3	4
7. Recognize what a client is saying is clear, on-target, or fuzzy or requires further clarification.	1	2	3	4
8. Question, discuss, and secure relevant information from a client when there is a need for redefinition or reconsideration.	1	2	3	4

Name

Place Date

SECOND SKILLS ASSESSMENT

The rating scales which follow permit a detailed assessment of your strengths and weaknesses in certain skills associated with this training. After reading each of the items below, circle the number which most nearly corresponds with your opinion at this time of your ability to:

	Not at all			Very well
1. Know how to conduct information searches in the ERIC system.	1	2	3	4
2. Know how to conduct information searches in other information systems.	1	2	3	4
3. Develop an efficient and comprehensive information search plans on the basis of (a) information obtained about a problem while consulting with a client, and (b) the characteristics of the information system to be used.	1	2	3	4
4. Make judgments about and be able to select relevant information from a particular data or library system.	1	2	3	4
5. Recover material selected and determined to be relevant to the stated problem.	1	2	3	4
6. Recognize the influence of external factors (i.e., training, background, experience, etc.) on the retrieval of information from the data system and seek to minimize the effect of these factors to expand the objectivity of the search.	1	2	3	4
7. Define and explain the significance of retrieving information pertinent to a specific educational problem.	1	2	3	4

Name

Place Date

THIRD SKILLS ASSESSMENT

The rating scales which follow permit a detailed assessment of your strengths and weaknesses in certain skills associated with this training. After reading each of the items below, circle the number which most nearly corresponds with your opinion at this time of your ability to:

	Not at all			Very well
1. Define and explain the significance of transforming retrieved materials into a language understandable to the client.	1	2	3	4
2. Screen articles, researches, and other information resources for specific relevance to a client's request.	1	2	3	4
3. Discriminate between different different ways for presenting selected information.	1	2	3	4
4. Assess own ability to synthesize information for a client.	1	2	3	4
5. Abstract accurately the contents of a document.	1	2	3	4
6. Organize and display selected information.	1	2	3	4
7. Explain how good communication will determine the success of consultant service to his client.	1	2	3	4
8. Prepare both an oral and a written report transmitting the selected information to the client.	1	2	3	4
9. Convey to the client judgments about the quality and appropriateness of the information you have selected and prepared.	1	2	3	4
10. Identify and delineate ways in which the client can make effective use of the information presented.	1	2	3	4
11. Attend to client responses in such a way that communication techniques can be adjusted.	1	2	3	4
12. Verify that information provided satisfies the client.	1	2	3	4

APPENDIX C-3

THE EDUCATIONAL INFORMATION CONSULTANT:
SKILLS IN DISSEMINATING EDUCATIONAL INFORMATION

Post-training Feedback

Your assessment of the EIC training at this point in time will provide important information to help us evaluate the effectiveness of this training. All information you provide will be kept strictly confidential.

1. Location of EIC training:_____

2. Date of EIC training:_____ 3. Today's date:_____

4. Sex: Male Female 5. Birthdate:_____

6. Major academic field and degrees:_____

7. Present occupation/position:_____

_____

_____

8. Overall, what is your rating of the EIC training experience?

Useless 1 2 3 4 5 6 Valuable

9. If the training did not meet your objectives for taking it, check the one major reason why.

_____Advance description of training misleading
_____Prior knowledge of subject area not sufficient
_____Prior knowledge of subject area too advanced
_____Training not designed in manner sufficient to sustain motivation
_____Pacing of training experiences too fast
_____Pacing of training experiences too slow
_____Other (Please specify.)_____

10. Do you think that the job you now hold (or hope to hold) will require you to use the skills you are learning in this training?

Definitely no 1 2 3 4 5 6 Definitely yes

In what way?_____

_____

11. Given your background and prior knowledge, how do you feel about the level of this training?

Considerably too easy 1 2 3 4 5 6 Considerably too difficult

How skilled do you feel you are now in performing each of the following processes?

		Unskilled					Skilled
12.	Negotiation	1	2	3	4	5	6
13.	Retrieval	1	2	3	4	5	6
14.	Transformation	1	2	3	4	5	6
15.	Communication	1	2	3	4	5	6
16.	Evaluation	1	2	3	4	5	6

Check the modules of this training which you completed. For each module checked, circle the number which most nearly corresponds with your opinion of how much you feel you learned and how much you liked each module. Refer to your Training Manual, if you wish, to review the specified modules.

	MODULE	Learned very little					Learned very much	Did not like					Liked very much
17.____	Introduction	1	2	3	4	5	6	1	2	3	4	5	6
18.____	Simulation	1	2	3	4	5	6	1	2	3	4	5	6
19.____	Negotiation	1	2	3	4	5	6	1	2	3	4	5	6
20.____	Retrieval	1	2	3	4	5	6	1	2	3	4	5	6
21.____	Transformation	1	2	3	4	5	6	1	2	3	4	5	6
22.____	Communication	1	2	3	4	5	6	1	2	3	4	5	6
23.____	Evaluation	1	2	3	4	5	6	1	2	3	4	5	6

24. How would you compare the value of this training to other formal training you have received (e.g., in college/university classes; university extension courses; professional seminars, institutes; etc.)?

Much less value 1 2 3 4 5 6 Much more value

25. What types of personnel do you think might find this training a worthwhile learning experience?_____

_____

26. For persons in your occupation and position, how would you recommend this training be scheduled?

____Semester course
____Quarter course
____Two-week (10-day) institute
____One-week (5-day) institute
____One-day overview
____Individualized study (three-member teams)
____Other (Specify.)_____

For each of the following items, check the degree to which you agree or disagree.

		Strongly disagree					Strongly agree
27.	The pace of this training is about right.	1	2	3	4	5	6
28.	Interaction with the other trainees during class sessions is a worthwhile learning experience.	1	2	3	4	5	6
29.	The team activities during training sessions generally proceeded smoothly.	1	2	3	4	5	6
30.	There is not sufficient time during training sessions to interact with the instructor.	1	2	3	4	5	6
31.	The amount of time spent on the outside learning activities is about right.	1	2	3	4	5	6
32.	The Training Manual is clearly organized.	1	2	3	4	5	6
33.	I would recommend that others take this training.	1	2	3	4	5	6
34.	I am interested in taking more ad advanced training in this field.	1	2	3	4	5	6

The following questions are about the audiovisual materials used in this training.

THE EMERGING ROLE OF THE EDUCATIONAL INFORMATION CONSULTANT
(slide-tape presentation in the Introduction Module)

35. Was this presentation a good orientation to the major aspects of the EIC's role?

Definitely no 1 2 3 4 5 6 Definitely yes

36. Did this presentation help to increase your motivation to learn how to work in the EIC role?

Definitely no 1 2 3 4 5 6 Definitely yes

37. How essential is this presentation to the overall effectiveness of the training?

Not at all essential 1 2 3 4 5 6 Very essential

SIMULATION OF THE NEGOTIATION AND COMMUNICATION INTERVIEWS
(tape presentation in the Simulation Module)

38. Did listening to these interviews help acquaint you with factors involved in a real negotiation and a real communication between an EIC and client?

Definitely no 1 2 3 4 5 6 Definitely yes

39. How essential to the effectiveness of the Simulation Module do you think these taped interviews are?

Not at all essential 1 2 3 4 5 6 Definitely essential

A NEGOTIATION INTERVIEW
(tape presentation in the Negotiation Module)

40. Did listening to this tape help you to identify skills involved in negotiating an information problem with a client?

Not at all 1 2 3 4 5 6 Very much

41. Do you think evaluating this negotiation interview was a worthwhile learning experience?

Not at all worthwhile 1 2 3 4 5 6 Very worthwhile

42. How essential to the effectiveness of the Negotiation Module do you think this taped interview is?

Not at all essential 1 2 3 4 5 6 Definitely essential

INTRODUCING ERIC/ChESS
(slide-tape presentation in the Retrieval Module)

43. Before you saw this slide-tape, how much did you know about the ERIC information system?

Nothing at all 1 2 3 4 5 6 Very much

44. To what extent did viewing this slide-tape help you to learn how to use ERIC?

Not at all 1 2 3 4 5 6 Very much

45. How essential to the effectiveness of the Retrieval Module do you think this slide-tape presentation is?

Not at all essential 1 2 3 4 5 6 Definitely essential

ERIC DIALOG
(slide-tape presentation in the Retrieval Module)

46. Before you saw this slide-tape presentation, did you already know about ERIC DIALOG? _____

47. To what extent did viewing this slide-tape help you to learn about ERIC DIALOG?

Not at all 1 2 3 4 5 6 Very much

48. To what extent did this presentation on DIALOG contribute to your overall understanding of mechanized information retrieval systems?

Not at all 1 2 3 4 5 6 Very much

49. How essential to the effectiveness of the Retrieval Module do you think this slide-tape presentation is?

Not at all essential 1 2 3 4 5 6 Definitely essential

Please comment on your overall reaction to any of the audiovisual presentations, and list any suggestions for improving this aspect of the training.

_____

_____

A Guide to Educational Resources (Directory)

50. To what extent did you use this directory in completing in-class and outside assignments?

Not at all 1 2 3 4 5 6 Very much

51. To what extent did you find this directory helpful for locating specific educational information resources?

Not at all helpful 1 2 3 4 5 6 Very helpful

Please comment on your overall reaction to the directory, A Guide to Educational Resources, and list any suggestions for improving it.

_____

_____

52. If the Training Manual were commercially produced, what would be the highest cost you believe others would be willing to pay for it?

$10 $15 $20 $25 $30 $35

53. Please comment on the overall format of the Training Manual and note any suggestions for improvement.

_____

_____

54. Describe the type of additional training in the area of information dissemination which you would like to receive.

_____

_____

55. List below any specific suggestions or comments you have concerning the improvement of any aspect of the EIC training.

_____

_____

_____

_____

_____

APPENDIX C-4

THE EDUCATIONAL INFORMATION CONSULTANT:
SKILLS IN DISSEMINATING EDUCATIONAL INFORMATION

Instructional Manager Evaluation Form

Your evaluation of the EIC training will provide important information to help us assess its effectiveness. All information will be kept strictly confidential.

Name _____ Date _____

Address _____

_____

Academic Degrees and Field _____

Present Occupation/Position _____

Form(s) of EIC Training You Managed _____Course _____Institute

Location of EIC training _____Dates of training _____

_____

Please circle the number which best represents your opinion.

1. Did you find the EIC training package fully "operational," that is, were the training materials and your Guide to Instructional Management in a form which allowed you to conduct the training effectively, without needing a great deal of additional input or assistance?

Not at all operational				Highly operational	
1	2	3	4	5	6

Comments: _____

_____

_____

In questions 2-6, please rate the Guide to Instructional Management on each of the following dimensions:

2. Overall usability.

Difficult to use					Very easy to use
1	2	3	4	5	6

Comments: _____

_____

_____

3. Directions for handling the module elements.

Inadequate					Adequate
1	2	3	4	5	6

Comments: _____

_____

_____

4. Format of the guides to the elements.

Unclear					Clear
1	2	3	4	5	6

Comments: _____

_____

_____

5. Amount of background or input on the elements for the instructional manager.

Insufficient					Sufficient
1	2	3	4	5	6

Comments: _____

_____

_____

6. Specificity of goals for the training elements.

Not specific enough					Specific enough
1	2	3	4	5	6

Comments: _____

_____

_____

7. Rate the difficulty level of the EIC training content for your group of trainees.

____Too easy
____Somewhat easy
____About right
____Somewhat difficult
____Too difficult

Comments: _____

_____

_____

8. Were you able to follow the time schedule for the training, as outlined in the Guide to Instructional Management?

Not at all					Completely
1	2	3	4	5	6

Comments: _____

_____

_____

9. Did the sequence of modules and/or elements seem logical to you?

Completely illogical					Very logical
1	2	3	4	5	6

Comments: _____

_____

_____

10. Were you able to perform the role of instructional manager as described in the Guide?

Not at all				Completely	
1	2	3	4	5	6

Comments: _____

_____

_____

11. How comfortable were you in performing the role of instructional manager?

Very uncomfortable				Very comfortable	
1	2	3	4	5	6

Comments: _____

_____

_____

12. How do the EIC training materials compare with other instructional materials you have used or taught?

_____

_____

_____

_____

13. If the cost of the student Training Manual were between $10 and $25, how would you (or your institution) make it available to your students? (Check one.)

____ Buy a Manual for each student
____ Require each student to buy the Manual
____ Buy one Manual and duplicate the number needed
____ Provide copy(ies) in the library
____ Other (Specify: _____)

14. How do you think the EIC materials should be packaged? (Check one.)

____ Each piece available separately
____ As a set containing one copy each of the Guide to Instructional Management, the Training Manual, the audiovisual presentations and the Ecology Information Packet, with additional Training Manuals and Ecology Packets available separately
____ As a complete package with materials for an instructor and 10 students
____ As a complete package with materials for an instructor and 15 students
____ Other (Specify: _____)

15. For which types of personnel (i.e., what occupations or positions) do you think the EIC training is most appropriate?

_____

_____

16. Would you vary the training approach or format to suit any or all of the above types of personnel? If so, specify how and for which personnel.

_____

_____

_____

_____

17. Are you now or will you soon be conducting any training in which the EIC materials could be used? ____yes ____no

18. Would you actually use the EIC materials in that training? ____yes ____no

Comments: _____

_____

_____

19. If any difficulties or problems arose which in any way impeded the effectiveness of the EIC training, what were they and how do you think they could be avoided?

_____

_____

_____

_____

_____

_____

20. List below any suggestions or comments you have concerning any aspect of the EIC training.

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX C-5

EVALUATION CHECKLIST FOR INFORMATION PACKAGE

Items required for evaluation:

Transformed package
Letter of Transmittal
Paper Trail (completed)

	Strongly Disagree			Strongly Agree
1. The negotiated client problem is narrowed and defined in succinct terms.	1	2	3	4
2. Search terms have been formulated to ensure a comprehensive and efficient search.	1	2	3	4
3. The retrieved material has been redefined by the EIC into an actionable package for the client.	1	2	3	4
4. The retrieved materials are organized in such a way as to best serve the client's stated problem and need.	1	2	3	4
5. Relevant documents have been summarized to permit the client a concise perspective on the contents or nature of a document.	1	2	3	4
6. The letter of transmittal includes:				
a. A restatement of the client's problem.	1	2	3	4
b. An inclusive description of the contents of the information package	1	2	3	4
c. A statement relating to the limitations of the package	1	2	3	4
d. Recommendations and conclusions	1	2	3	4
7. The transformed package fulfills the client's requirements in terms of the negotiated problem statement.	1	2	3	4

Appendix D

Paper Trail Documents

D-1 EIC Negotiation Checklist
D-2 Observer Checklist for EIC/Client Negotiation
D-3 Search Referral Form
D-4 Search Procedure Form
D-5 Transformation Checklist
D-6 EIC/Client Communication Checklist
D-7 Client Feedback Form
D-8 EIC Self-Evaluation Form

APPENDIX D-1

EIC Negotiation Checklist

1. Client: _____ Date of Request: _____
   Position: _____ Date Needed: _____
   School/District: _____
   Address: _____ Phone: _____

2. Problem Area: _____
   _____
   _____
   Age/Grade Restriction: _____
   Other Restriction(s): _____

3. Purpose of Request: _____
   _____

4. Type of Request:
   - [ ] Specific Reference:
   - [ ] Methods
   - [ ] Programs
   - [ ] Special Resources
   - [ ] Theory
   - [ ] Research and Evaluation
   - [ ] Other (Specify:)

   Depth of Search: _____Level Back to 19_____
   Additional Information:

5. Type of Materials Requested:

6. Statement of Problem:

7. Search Terms:

Person taking request: _____

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APPENDIX D-2

Observer Checklist for EIC/Client Negotiation

Notes on _____
(EIC's name)

Instructions. For each of the following items, circle the letter that most nearly corresponds with your observations concerning the interaction between EIC and Client. Be sure to answer each item.

1. Did the EIC help the Client state what his problem was?

   a. No, not at all
   b. Yes, helped somewhat
   c. Yes, helped considerably
   d. Yes, actively helped
   e. Cannot say

2. Did the EIC help the Client clarify what he needed?

   a. No, didn't help at all
   b. Yes, vaguely
   c. Yes, somewhat
   d. Yes, a great deal
   e. Cannot say

3. Did the EIC listen to the Client's problem?

   a. Didn't pay attention
   b. Listened, but seemed to be easily distracted
   c. Paid close attention
   d. Don't know

4. Did the EIC communicate to the Client that he understood the problem?

   a. Communicated this very well
   b. Mostly communicated this
   c. Partially communicate this
   d. Didn't communicate this at all
   e. Don't know

5. To what extent did the questions asked by the EIC actually help the Client to clarify his problems?

   a. Didn't help at all
   b. Helped somewhat
   c. Was extremely helpful
   d. Couldn't tell

6. Did the EIC ask questions which indicated that he had a clear grasp of what the Client had said?

   a. Rarely
   b. Occasionally
   c. Frequently
   d. Regularly
   e. Can't say

7. Did the EIC make any effort to find out about the Client's personal motivation, feelings, or attitudes toward the problem?

   a. No effort
   b. Little effort
   c. Some effort
   d. A great deal of effort
   e. Cannot say

8. Did the EIC indicate through his general demeanor, posture, or gestures (such as nodding his head, murmuring "uh-huh," smiling, etc.) that he was encouraging the Client to continue to elaborate and discuss the problem?

   a. Not at all
   b. Intermittently
   c. Frequently
   d. Very frequently
   e. Cannot say

9. Did the EIC ask the Client repetitive questions?

   a. Very frequently
   b. Frequently
   c. Occasionally
   d. Rarely
   e. Don't know

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10. During the interview, did the EIC restate or paraphrase the Client's problem correctly?

    a. Completely correct
    b. Mostly correct
    c. Partially correct
    d. Not at all
    e. Don't remember

11. Did the EIC ask whether the Client was familiar or had any previous experience with this type of problem?

    a. Yes
    b. Hinted
    c. No
    d. Don't remember

12. Did the EIC ask the Client what assistance he expected to get from the EIC?

    a. Yes
    b. No
    c. Don't remember

13. Did the Client and the EIC agree on the course of action to be taken (that is, agree on what information was needed and when) before terminating their interview?

    a. Yes
    b. Partially
    c. No
    d. Don't remember

    If "Partially" or "No," explain why:

14. Did the Client agree that the search terms suggested by the EIC were descriptive of the problem they had discussed?

    a. No, none were descriptive
    b. Yes, agreed some were
    c. Yes, agreed most were
    d. Yes, agreed all were
    e. Don't remember

The following questions concern the Client's reactions to questions asked by the EIC. Circle the letter that most nearly corresponds with your opinion of the interaction between EIC and Client.

15. How did the Client react to the EIC's questions?

    a. Unresponsive
    b. Slightly responsive
    c. Responsive
    d. Extremely responsive
    e. Don't remember

16. How well did the Client appear to understand the EIC's questions?

    a. Clearly
    b. With some understanding
    c. Vaguely
    d. Not at all
    e. Cannot say

17. How did the Client appear at the conclusion of the interview.

    a. Lost
    b. Not fully satisfied
    c. Satisfied
    d. Don't remember

Comments: (Use other side, if necessary.)

Observer_____

APPENDIX D-3

SEARCH REFERRAL FORM

NAME OF USER	DATE OF INQUIRY
INQUIRY (BRIEF)	
SEARCH TERMS	

GENERAL REFERENCE BOOKS IN EDUCATION

- [ ] Dictionary of Education
- [ ] Digest of Educational Statistics
- [ ] Documentation in Education
- [ ] Education Directory
- [ ] The Educator's Encyclopedia
- [ ] Encyclopedia of Educational Research
- [ ] Fundamental Reference Sources
- [ ] Handbook of Educational Research
- [ ] How to Find Out
- [ ] Human Behavior: An Inventory of Scientific Findings
- [ ] International Encyclopedia of the Social Sciences
- [ ] Personality Tests and Reviews
- [ ] Reading Tests and Reviews
- [ ] A Selected Guide to Curriculum Literature
- [ ] The Sixth Mental Measurements Yearbook
- [ ] Sources in Educational Research
- [ ] The Teachers' Library
- [ ] Who-What-Where-When-How-Why Made Easy, a Guide to the Practical Use of Reference Books

INDEXING & ABSTRACTING SERVICES; BIBLIOGRAPHIC REVIEWS

- [ ] America's Education Press
- [ ] Book Review Digest
- [ ] Books in Print
- [ ] Current Contents: Education
- [ ] Current Index to Journals in Education (CIJE)
- [ ] Education Index
- [ ] Education Selections from ERIC and NTIS
- [ ] El-Hi Textbooks in Print, 1971
- [ ] The Elementary School Library Collection
- [ ] Forthcoming Books in Print
- [ ] 4000 Books for Secondary School Libraries: a Basic List
- [ ] Guide to Periodicals in Education
- [ ] Index to Computer Assisted Instruction
- [ ] Monthly Catalog of United States Government Publications
- [ ] PREP (Putting Research into Educational Practice)
- [ ] Psychological Abstracts
- [ ] Research in Education (RIE)
- [ ] Senior High School Library Catalog
- [ ] Statistical Abstract of the United States
- [ ] Subject Guide to Children's Books in Print, 1970-71

GUIDES TO MEDIA & CURRICULA PRODUCTS

- [ ] The Audio-Visual Equipment Directory
- [ ] Audio-Visual Market Place: a Multimedia Guide
- [ ] Audio-Visual Source Directory for Services and Products
- [ ] AVI Guide to New Products
- [ ] Basic Reference Shelf on Museums and Media
- [ ] Educational Product Report
- [ ] Educator's Progress Service Series
- [ ] Educator's Purchasing Masters. Vol. 1. Instructional Materials
- [ ] Educator's Purchasing Masters. Vol. 2. Instructional Equipment
- [ ] Elementary English
- [ ] Free and Inexpensive Learning Materials
- [ ] The Guide to Simulation Games for Education and Training
- [ ] Learning Directory 1970-71
- [ ] National Information Center for Educational Media (NICEM) series
- [ ] New Educational Materials, 1970
- [ ] Report of the International Clearinghouse on Science and Mathematics Curricular Developments
- [ ] Social Studies Curriculum Materials Data Book
- [ ] Telecourse Catalog 1971. Factbook and Fact Sheets
- [ ] U.S. Government Films: a Catalog of Motion Pictures and Filmstrips for Sale by the National Audiovisual Center

GUIDES TO HUMAN & INSTITUTIONAL RESOURCES

- [ ] Agency Resource File
- [ ] American Association of School Librarians
- [ ] Directory of Educational Information Resources
- [ ] A Directory of Information Resources in the United States: Social Sciences (1965)
- [ ] A Directory of Information Sources in the United States: Federal Government
- [ ] CEDaR Catalog of Selected Educational Development and Research Programs, Projects and Products
- [ ] Educator's World
- [ ] ERIC Clearinghouses
- [ ] Handbook of Information Sources in Education and the Behavioral Sciences
- [ ] Human Resources File
- [ ] Institute for the Development of Educational Activities (IDEA)
- [ ] Leaders in Education
- [ ] National Faculty Directory 1971
- [ ] Regional Educational Laboratories
- [ ] Research and Development Centers
- [ ] Science Teaching

INFORMATION RESEARCH SERVICES

- [ ] DATRIX: (Direct Access to Reference Information: A Xerox service)
- [ ] ERIC: DIALOG (Online Retrieval System)
- [ ] ERIC Searches (Northern Colorado Educational Board of Cooperative Services)
- [ ] National Education Association
- [ ] National Referral Center for Science and Technology
- [ ] Science Information Exchange (SIE)
- [ ] SDC (Systems Development Corporation)/ERIC
- [ ] School Research Information Service (SRIS)

APPENDIX D-4

Search Procedure Form

STEP ONE: DEFINE PROBLEM

STEP TWO: DERIVE GENERAL APPROACH

(CRITERIA)

SELECT RESOURCES

STEP THREE: DETERMINE SEARCH TERMS

Initial search terms: Added search terms:

(over)

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STEP FOUR: CONSULT RESOURCES

(SOME CRITERIA USED IN MAKING RELEVANCE JUDGMENTS)

REFORMULATE PROBLEM (?)

STEP FIVE: LIST CITATIONS

EIC_____

Transformation Checklist

Client: _____ Date Information Received: _____

Position: _____ Date Package Completed: _____

School/District: _____ Date Package Needed: _____

Address: _____ Phone: _____

1. Delivery Mode:

   ___Telephone ___Letter, Memo ___Direct

2. Package Utilization Aids Included:

   ___List of Contents ___Instructions for Use ___Other (Specify:)

   ___Description of Contents ___Suggestions for Review Priorities

3. Package Contents:

Item Selected				Format*	Delivery Form**			
Author/ Source	Title	Date	Type of Information		Micro-fiche	Photo-copy	Loan	Re-lease

*Reference page 4, Transformation Guidelines.

**Delivery Form specifies the way in which the materials are being sent to the client. You can send a microfiche or photocopy of the original or transformed document. If you send an original or transformed document, you can also specify that you wish the document returned (loan) or that the client may keep the document for his own files (release).

Package prepared by: _____ FWLERD 1/72

APPENDIX D-6

The EIC/Client Communication Checklist

Notes on_____
(EIC's name)

Instructions. Observing others as they convey information they have gathered will sharpen your own communication skills. Heightened awareness of how others handle transactions of the type we have been studying will lead to more accurate perception of one's own performance under similar circumstances.

Familiarize yourself with this form before the EIC and Client begin. Listen carefully when information is exchanged and also observe the style with which the EIC communicates. Perhaps you will observe something you do not understand. Questions about techniques or comments about the progress of the interview may occur to you. Jot them down in the space provided. Do not let this distract you from observing, however.

After the interview is over, check the one response to each of the following questions which most closely approximates your observation of how and what took place during the EIC/Client communication interview.

During the communication interview, did the EIC. . .

1. Attempt to restate the client's problem?

   a. No, not at all
   b. Yes, made a brief attempt
   c. Yes, restated
   d. Do not know

2. Make reference to the "contract"?

   a. No, not at all
   b. Yes briefly
   c. Yes, clearly made reference
   d. Do not know

3. Explain the organization of the information in the client's "package"?

   a. Gave a good explanation
   b. Made some effort to explain
   c. Made no apparent attempt to explain
   d. Cannot say

4. Suggest ways to use the information?

   a. Not at all
   b. Only a few
   c. Some suggestions made
   d. Excellent suggestions made
   e. Cannot say

5. Explain the limitations of the packet?

   a. Gave a complete explanation
   b. Touched on the subject
   c. Made no mention
   d. Do not remember

6. Explain how client can obtain additional information?

   a. No explanation made
   b. Briefly mentioned other possibilities
   c. Explanation of other possible sources
   d. Cannot say

(over)

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7. Make evaluative judgment(s) about the quality of this specific packet?

   a. Yes, explicitly
   b. Yes, vaguely
   c. No, not at all
   d. Did not notice

8. State his level of competence to select, make judgments about relevance, and transform information?

   a. Clearly stated
   b. Mentioned briefly
   c. No mention made
   d. Cannot say

9. Offer additional help to client?

   a. No, did not offer
   b. Mentioned casually
   c. Made a definite offer
   d. Cannot say

10. Listen carefully to the client's questions?

    a. Paid close attention
    b. Seemed somewhat distracted
    c. Did not pay attention
    d. Cannot say

11. React positively to nonverbal communication from the client?

    a. Had a positive reaction
    b. Had an occasional reaction
    c. Had no reaction whatsoever
    d. Cannot say

12. Convey the information in a confident and believable manner?

    a. Yes
    b. Haltingly
    c. No
    d. Cannot make a judgment

13. Conduct the interview with ease?

    a. Yes
    b. Somewhat nervously
    c. No
    d. Cannot say

14. Did the extent and the depth of the search seem consistent with the client's request?

    a. Yes
    b. Apparently
    c. No
    d. Cannot say

15. Did the client express, verbally, satisfaction with the service he received?

    a. Yes
    b. With some apparent reservation
    c. No
    d. Cannot say

16. Did the client indicate dissatisfaction, nonverbally, concerning the service he received?

    a. Yes, strongly indicated
    b. Apparent dissatisfaction
    c. No indication
    d. Cannot say

Suggestions to the EIC for more effective communication:

Observer_____

APPENDIX D-7

Sample Client Feedback Form #1*

(Please respond to all questions)

Title of Position _____ Name (optional) _____

1. Which of the following best describes the reason for your request? (More than one choice permitted)

___Classroom needs as I deal daily with students
___School or department working on educational improvement in the area of my request
___Professional growth (writing, reading, or further schooling) necessitated additional information
___Interest as a result of attending a meeting, conference, etc.
___Other (specify)_____

_____

2. Which of the following best describes how you used the information received as a result of your request? (More than one choice permitted)

___To complete the original pursuit
___To investigate new pursuits it suggested
___To re-evaluate the direction of the original pursuit
___To assist in decision-making about educational practices
___Other (Specify)_____

_____

3. One of the objectives of the Information Center is to provide "one-stop" service where referrals to programs, printed materials, and consultants are available from one source.

   a. Are you familiar with <u>other</u> institutions, individuals, or agencies which could provide this "one-stop" service?

      Yes ____ No ____ (If yes, please indicate the name(s))

   b. From what source(s) did you obtain information prior to your using the Information Center?

4. How would you rate the services provided by the Information Center?

/_____/_____/_____/_____/_____/
excellent adequate unnecessary

*Adapted from <u>User Evaluation Questionnaires</u>, designed by the MOREL Information Center, Detroit, Michigan

5. What activities would you suggest we

   a. start?

   b. stop?

6. Regarding the projects and programs referred to you, did you review the background information supplied?

   ____Completely
   ____Somewhat
   ____Not at all
   ____None provided

7. Did you write, telephone, or visit a project or program?

   ____Yes (specify) ____Mail ____Telephone ____Visitation
   ____No

8. How would you rate the contribution of the project or program you wrote to, telephoned, or visited?

   ____Provided many new ideas
   ____Provided some new ideas
   ____Provided very little that was new
   ____Reinforced present thinking
   ____Irrelevant
   ____Other (specify)_____

   _____

9. Regarding the printed materials (bibliographies, articles, etc.) sent to you, were they

   a. read

   /_____/_____/_____/_____/_____/_____/_____/
   extensively in part not at all

   b. relevant to your needs?

   /_____/_____/_____/_____/_____/_____/_____/

10. Concerning the referrals to other agencies for additional information, were they contacted?

    ____Yes
    ____No
    ____No referrals given

11. If agencies to which you were referred <u>were</u> contacted, to what extent were they able to assist you?

    /_____/_____/_____/_____/_____/_____/_____/
    extensively somewhat not at all

APPENDIX D-8

EIC Self-Evaluation Form

NEGOTIATION

1. Inferior: Does not adequately negotiate the client's problem in either written or oral form.

   Superior: Successfully negotiates client's problem and formulates a precise written and oral description to guide further analysis and information retrieval.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

2. Inferior: Misses the real purpose behind the client's request.

   Superior: Narrows down and pinpoints the real purpose of the client's request.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

RETRIEVAL

1. Inferior: Poorly develops search plan, creating problems with the search and summary procedures.

Superior: Develops an efficient and comprehensive search plan.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

2. Inferior: Poorly assesses the contents of applicable documents, missing the information needs of the client.

Superior: Accurately assesses the contents of the applicable documents fulfilling the client's need in terms of the negotiated problem definition.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

TRANSFORMATION

1. Inferior: Organization of resources inadequate. — Superior: Exceptional organization of resources.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

2. Inferior: Retrieved information not adequately capsulized. — Superior: Retrieved information well capsulized.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

3. Inferior: No effort spent in determining how material assembled for client meets his needs in terms of potential utilization.

Superior: Expends considerable effort in determining how client uses the material provided and presents alternative methods for utilization.

[ ] Inferior [ ] Below Average [ ] Average [ ] Above Average [ ] Superior

Action Needed to Close the Gap

OVERALL PERFORMANCE

1. Inferior: In general, overall performance is not adequate because strengths in one or more processes unable to compensate for areas of weakness.

Superior: Successful performance throughout the interaction with the client.

[ ] Inferior [ ] Below Average [ ] Average [ ] Above Average [ ] Superior

Action Needed to Close the Gap

COMMUNICATION

1. Inferior: Poor oral and written communication. Superior: Excellent oral and written communication.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

2. Inferior: Little insight into client's potential use of materials retrieved. Superior: Insightful grasp of client's potential use of the information provided.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

2. Inferior: Does not attempt to readjust strategy in order to deal satisfactorily with client.

Superior: Adjusts techniques to deal satisfactorily with client.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap

3. Inferior: Work is generally below par; fails to meet client's needs.

Superior: Satisfies the client.

[ ]	[ ]	[ ]	[ ]	[ ]
Inferior	Below Average	Average	Above Average	Superior

Action Needed to Close the Gap